THIS WEEK'S National Petroleum NEWS

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Western Petroleum Refiners Association, Shreveport, La., March 10, 11, 12.

Pennsylvania Oil Men's Association, Elks Hotel, Philadelphia, March 11, 12.

Tennessee Oil Men's Association, Patten Hotel, Chattanooga, Tenn., March 14, 15.

Oil Equipment and Engineering Exposition, Shrine Auditorium, Los Angeles, March 16 to 23.

Independent Oil Men of America, Chicago, March 17, 18.

American Society for Testing Materials, regional meeting, Book-Cadillac Hotel, Detroit, Mich., March 19.

Michigan Oil Men's Association, Statler Hotel, Detroit, March 19, 20, 21.

American Association of Petroleum Geologists, Roosevelt Hotel, New Orleans, La., March 20, 21 and 22.

American Petroleum Institute, Eastern District, Division of Production, William Penn Hotel, April 7.

American Chemical Society, Atlanta, Ga., April 7 to 11.

American Oil Burner Association and National Oil Burner Show, Hotel Stevens, Chicago, April 7 to 12.

National Petroleum Association, Cleveland, O., April 24, 25.

American Society for Testing Materials, Atlantic City, N. J., June 23 to 27.

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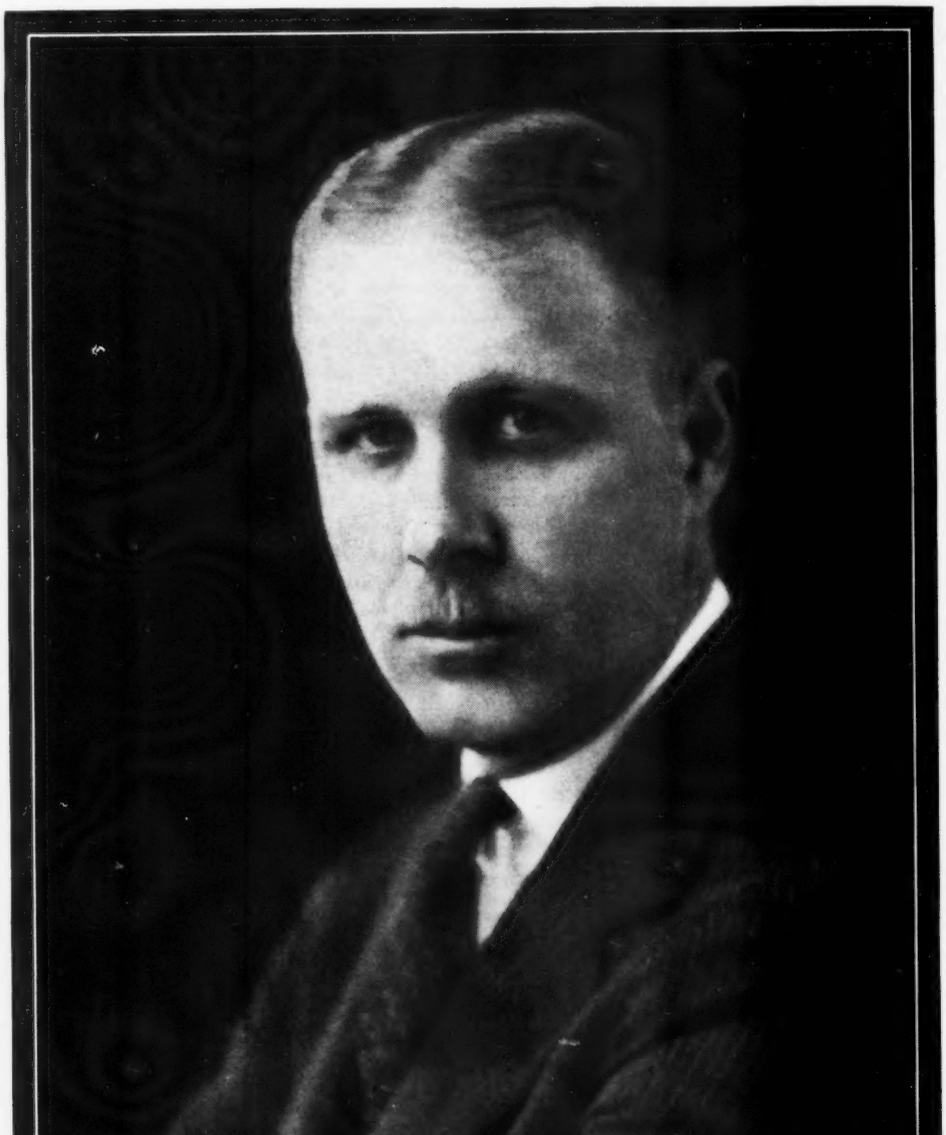

F. O. PRIOR has been elected president of the Dixie Oil Co. to succeed A. W. Peake who was called to Chicago to take charge of all producing activities of the Standard Oil Co. of Indiana. The Dixie is a Mid-Continent producing subsidiary of the Indiana company.

Entry of Mr. Prior into oil was as a roustabout in the Salt Creek field of Wyoming for the Midwest Refining Co. This was in 1919 following his discharge from the army. After a year's field work Mr. Prior was moved to Casper headquarters of the company as engineer and placed in charge of electrification of the Salt Creek field. After this job was finished he electrified other properties.

In 1928 he came to the Dixie Oil Co. as general superintendent and chief engineer with headquarters at Shreveport. A year ago he was made vice president in charge of operations and moved with the company to Tulsa. Mr. Prior is an engineer graduate of Stanford University.

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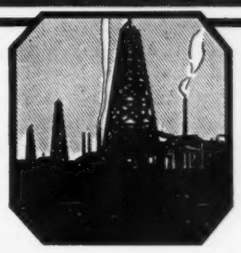

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Political—Perhaps Legislative—Action Affecting Oil in the Offing

By Lawrence E. Smith
N. P. N. STAFF WRITER

WASHINGTON, March 1

NEVER before in the oil industry has there been a time when so many factors have been at work, both inside and outside the industry, which will almost certainly affect its future operations.

This article tells something of this multitude of cross currents of thought and conflict of opinion, both within the industry and outside.

It is written fresh from the atmosphere of Washington because it is there that these cross currents first make ripples on the surface of public opinion that will later widen out over the country.

The situation is one that is of concern to every man in the oil business, whether producer, refiner or marketer regardless of the position he holds; for there is the possibility that political action of some kind will result, which will be aimed at the method and rate of producing oil. This will affect the price of crude oil and eventually the price the filling station man secures from the public for oil products.

Today, there is a breach created in the industry itself—between major units of the industry—by the recent reductions in price of crude oil in the fields east of California, starting with the Mid-Continent and Texas, bringing into sharp conflict the large purchasing pipe-line companies whose position is wholly domestic, and those who operate in the world market. There is also a political phase more sharply defined than at any time since the famous crusade by the government, spurred by the Independents, that led to the dissolution of the old Standard Oil Co.

The present political maneuvers, on the surface, are a continuation of that crusade. Outwardly, and so far as the public is concerned, the first firing will be directed at the Standard Oil Co. of New York-Vacuum Oil Co. merger, officially announced by those companies last week as agreed upon and subject to ratification by stockholders.

Immediately this statement drew from the Department of Justice the promise of speedy court action to test the legality of the merger. These companies were set apart as separate entities by the Supreme Court decree of 1911 and this is the first instance where one time branches of the old Standard seek to merge.

Attorney General Mitchell announced that he would, "within 10 days" (from Feb. 24) institute suit for injunction in the federal court at St. Louis to test the legality of the proposed merger. This might well be considered the "friendly suit" referred to by the affected companies except for the fact that Congressmen are ready to declare themselves in on it and try the case before the bar of public opinion. There are a half dozen or more who are ready to speak upon the subject any moment and the discussion will wander from the strictly legal phases of the New York-Vacuum merger to the question of mergers in general.

The political consideration that the oil industry is about to receive at the hands of the politicians differs greatly from that accorded during and after the Harding administration. That volleying and thundering was directed at a few individuals. It wasn't the sort of issue that would

Salesmanship At Stations

THE success or failure of a service station today is largely in the hands of operators at that station.

The company may get the right location, its products can be of the best, and yet the station not develop the business it is entitled to. The fault may be in the lack of training, or improper training, of the men there.

R. H. Thomas, author of "Merchandising of Petroleum Products," tells how service station operators may be trained—or train themselves—in an exclusive article in this issue, starting on Page 69.

win for the orator the applause of the voters.

The Congressman will be in tune with the populace this time. It must be realized that there is a widespread apprehension over the economic trend of the nation. The public is fearful of "mergeritis" which results in more and more concentration of power and capital and affects the living conditions of large numbers of people.

Any merger reduces the payroll of the combined companies over what they had separately. The fact that it makes for efficiency, lower production costs and other varied benefits is of small comfort to the people who must find new jobs. These people are inciting the Congressmen to make demonstrations against the corporate combinations.

The recent affair concerning Charles Evans Hughes is a case in point. It was amazing how quickly the revolt against that appointment grew. Given two or three more days without a vote on the confirmation and he would have been rejected by the Senate. At the outset, if a vote had been taken, only two or three Senators would have voted against him. To Henry L. Doherty goes much of the credit or blame, according to how you look at it, for stirring up the sentiment. He has an old and much advertised grudge against the present chief justice.

Difference With Hughes of Long Standing

The differences between Mr. Doherty and the American Petroleum Institute on the subject of conservation run back to 1923. In 1925 the institute retained Mr. Hughes to examine the law pertaining to federal constitutional powers on regulation of oil production. He read his brief to the Federal Oil Conservation Board. He said that the federal government possessed no power to regulate production on privately owned lands.

Mr. Doherty immediately took the floor to reply. His theory is that the federal government does possess authority. Mr. Hughes did not stay to hear Mr. Doherty and no attention was ever paid to the numerous challenges delivered by the latter to debate the question.

It will be remembered by those who followed the debate in the Senate over the Hughes confirmation that the chief theme was that Judge Hughes had so established his position on economic matters having to do with concentration of industrial authority as to make him an unwise choice for so governing a position as that of chief justice of the Supreme Court. Some Senators of a conservative cast of mind share this view. That was also the argument of Mr. Doherty.

Standard-Vacuum Merger May Serve As New Vehicle for Debate

The incident has been called by some political observers the "Second American Revolution." Although the fight failed, not even the victors are prepared to say that the matter is ended. It is certain to break out in another form and in Washington it is believed that the New York-Vacuum merger may well serve as the subject for renewal of politico-economic debate, which would bring the oil industry in general into the affair.

The oil industry is thus about to be held up to public inspection. Which direction this public inspection will take from there is uncertain. There are many avenues of attack and perhaps all of them will be used.

The industry itself is so hopelessly divided on the course of action to be followed in stabilizing itself that it may well come to be a political football again, on this issue. In Washington there is the tariff delegation, of independent operators from the southwest. It has been working since the first of February and working to some purpose.

Just before the oil tariff came to a vote observers in Washington not connected with the campaign believed that close to a majority in the Senate was favorably disposed to the tariff. It is clear that considerable headway had been made, since Wirt Franklin was advised when the crusaders started for Washington early in February that not more than a half dozen votes could be counted on. The campaign he made was vigorous and intelligent. Since the vote was taken he asserts that he intends to keep right on. He directs much of his fire at the big corporations which import oil.

Among these big companies is the Shell, which now is getting a foothold in Washington through acquisition of filling stations and this is construed by the tariff campaigners as a break for them. With so much discussion of the Shell going on over the country the sight of the red and yellow paint right out where the congressmen can see it every time they turn around is counted upon by the Independents to have its effect.

Doherty Announces He is About To Take up Cudgel Again

Fuel for the oil situation flames is about to be supplied once more by Henry L. Doherty. He declared in a meeting of the petroleum division of the American Institute of Mining & Metallurgical Engineers in New York the middle of February that he was "about to start." He meant, of course, to resume where he left off when illness forced his retirement from business for more than two years. He appears once more to have his old time energy and fire. His health is good and he looks as though he could run a foot race with anyone.

No matter what other oil men think of Mr. Doherty's ideas, he must not be taken lightly now. Granted that the Federal Oil Conservation Board possesses no powers, it can do much to influence public opinion. Mr. Doherty is held in high esteem by the Board and by the technical advisers thereof. He has been publicly credited on more than one occasion by Dr. George Otis Smith, director of the U. S. Geological Survey and one of the technical advisers to the board, with having inspired the creation of the board by Calvin Coolidge.

Further, Mr. Doherty commands much newspaper space whenever he says anything. The Hearst press, for instance, publishes his utterances and then publishes its own editorial endorsement of them. There are other newspapers that represent Mr. Doherty as the champion of the public's rights, as the knight with the flaming sword who would defend the people from the "predatory" interests.

Mr. Doherty's battle with the American Petroleum Institute has raged for several years and he is renewing the hostilities. He devoted considerable time in two sessions of the A.I.M.E. convention in New York to

(*Continued on Page* 22)

Close Refineries Sundays, Oil Board Suggests

By Telegraph

WASHINGTON, March 4.—That the refining industry operates its plants six days a week instead of seven, as a means of reducing the amount of gasoline produced, was suggested today by the Federal Oil Conservation Board.

The oil board says there is too much gasoline being turned out today, which is likely to lead to waste in the use of this product.

The proposal of the oil board was made in letters to the governors of Texas, Oklahoma and California, which letters suggested that the governors call to the attention of the refiners in their states the possibility of a six-day week as a means of relief. The board's letter said:

"The Federal Oil Conservation Board would like to call to your attention the existing situation in regard to the refining of crude oil, since it seems desirable to point out to the refineries of the country the advantage that would accrue from Sunday closing.

"At the present time the stocks (gasoline) are higher than they have been since 1927, while the domestic demand is only up to the level of 1928. In other words, the increased efficiency in cracking of oil, combined with the seven day week, is increasing gasoline stocks to a level where there will be a large element of waste. Therefore, the federal conservation board wishes to suggest that the refining of petroleum could well be brought to the normal basis of a six-day week."

The Editors' Viewpoint

National Petroleum News

"City Slicked" In Tariff Fight

TO USE a familiar expression, Wirt Franklin has been "city slicked" in his tariff campaign.

After the fury of the attack by Senators LaFollette and others died down the "pernicious oil lobby" didn't look so bad. Mr. Franklin told the Senate in all candor that he had always understood tariff bills were negotiated by the trading method. Anybody who doesn't know that such practice is the usual one in legislation whether it be a measure in a city council, state legislature or United States Congress, has little notion of how governments are run. "Log rolling" is the accepted rule. The Senate's attempts to appear horrified when Mr. Franklin discussed the practice openly must have appeared ridiculous to most people.

Mr. Franklin at no time made any secret of his plans for getting a tariff imposed on foreign oil. He has asserted in public meetings in Tulsa and elsewhere, in the year that he has campaigned under the banner of the Independent Petroleum Association of America, that he expected to line up the congressmen who favored a tariff on oil and get them to support sectional tariff issues elsewhere in return for support.

In the big meeting in Tulsa, just before the special train left for Washington, he asserted that the only hope of getting favorable action in this Congress was to solidify a bloc in the Senate that would be able to say, as he expressed it, "a tariff on oil or no tariff bill at all."

The campaign managed by Franklin was aboveboard and was clean. He employed some of the customary devices used, from time immemorial, by the Senators. He got a lot of "damphul" advice which the investigation showed he did not take. There were no riotous, bacchanalian revels at any time, no fancy "entertaining." Wirt Franklin is too much of a dry for anything like that.

Franklin made a good showing in the vote. He says he has just started to battle and knowing his tenacity, we believe he will be heard from at greater length. He is a fair fighter and the attempt to make him look as though he had formulated a sinister plot will not standup.

Dominance of Rail Rates Challenged

ANNOUNCEMENTS such as that by the Sun Oil Co., within the last few days, that it is at once entering Cleveland with its distribution of gasoline and that it plans to start at once its proposed gasoline pipe line from Marcus Hook into Ohio, presage important changes in the gasoline market structure in this section of the country, with perhaps wider influence.

Extensive movement of petroleum products, both by pipe line and by water means a breaking away from the dominance of markets by rail freight rates alone. One thing seems certain, namely that the area in which gasoline shipped inland from the Atlantic Coast can be marketed in competition with gasoline from the Mid-Continent and other refining districts will be considerably extended westward, through cheaper transportation.

Not only are the Standard of New Jersey and the Sun Oil interests planning gasoline pipe lines which will themselves tap important marketing areas direct; but water transportation by inland river, canal systems and the Great Lakes will be called on to extend the sphere of influence of the pipe lines.

It seems very likely that the extreme competition in which the big companies are engaged for gasoline distribution will translate these reduced transportation costs enjoyed by some companies into lower prices to the distributors who purchase gasoline supplies from them.

More than ever before it will behoove the marketer to study the various refinery markets, to watch their relative influence in his own territory and not to be confused by quotations based on one market, for goods actually shipped from some other.

John D. Will Not Get Back Into the Harness

A NEW YORK newspaper story of a week or ten days ago, which stated that John D. Rockefeller, Sr., had assumed active management of the affairs of certain of the Standard Oil companies in which he is most interested as a stockholder, has been denied by his son, John D., Jr., in an official statement given to the newspapers.

Such a denial was to be expected. If, as has been said in newspaper and magazine articles concerning the elder Mr. Rockefeller, he hopes to live to reach 100 years, those of us in the industry know that one almost certain way to frustrate that desire would be to assume the responsibilities of directing any fraction of the industry today. A man in the vigor of the prime of life might well hesitate before taking such a step.

Mr. Rockefeller, very fortunately from his own standpoint, many will think, retired from active participation in business more than 25 years ago. At the time he gave up his active business career, our production of crude was just getting up to 100,000,000 barrels a year, about one-tenth of what it is today. One cannot help but wonder if the course of the oil industry would have been greatly different had Mr. Rockefeller been 20 years younger and continued an active factor in the industry during the period it has had such a rapid expansion.

It is doubtful if he could have continued to hold his interests together under one close management through the period of "trust busting." It was also in the cards that the conservation of natural resources issue should center largely around oil. Competition would have been greatly intensified, as it has in all lines.

Mr. Rockefeller would have been the dominating factor in the industry the last decade, probably, to the extent to which he had the vision to see the problems of the entire industry some years ahead and the power to influence the thinking and working of the industry generally to meet those problems.

(*Continued from Page* 20)

telling his story. At this time the differences have narrowed to one of degree. At the outset there were many who opposed, with varying degrees of heat, his contention that oil pools should be developed and operated as units.

Today, the industry pretty largely accepts that theory and there is actual development work based on that theory. Mr. Doherty still holds out for compulsory unit operation, with the federal government doing the compelling. Some others say there should be compulsion, but by the state. Others say the industry can educate itself to the point where unit operation will be the accepted and universal policy. There is also some mild debate over the terms to be employed, whether "unit operation," or "unitization," but that is unimportant.

All is not well elsewhere in the industry. The recent reduction in oil prices initiated by the Standard Oil Co. of New Jersey was its declaration that all the attempts at curtailment had failed and that it had fallen back on the time-honored remedy—reducing the price of crude. Contesting this move every step of the way, the large purchasers with purely domestic position, such as the Prairie and the Sinclair, finally met the reduction. They held out for a month against it, however.

Wherein Standard's Position Differs From Most Purchasers

The New Jersey's position was that it could not continue to maintain a price for Mid-Continent and Texas crude oil that was out of line with its realization on refined products. It did not state that the efforts of producers in the Mid-Continent and Texas to hold production to demand had utterly failed. It commended the progress there, but asserted that refined products were going into its trade territory at price levels that penalized the Jersey company so long as it processed crude oil purchased at the price level that prevailed since last May.

The position of the Prairie, Sinclair and other companies who contested the price reduction was that their crude oil connections were not offending, that heroic sacrifices had been made by everyone in the Mid-Continent to keep production of light oil to demand, that the Jersey company had had a voice in saying what the production should be. In meeting the price cut, both the Sinclair and the Prairie companies issued statements asserting that the action was taken with great reluctance and that it was hoped that the producers would continue their work at keeping the supply down to what the market could absorb.

It is not the foreign supply that is the sole offender. California has been doing its noble best to keep things upset. There is a new prorating plan on now designed to hold crude oil production to around 610,000 barrels but the gasoline situation is bad.

Cargoes of gasoline are being sent out from California to the Atlantic seaboard, unconsigned. The shippers put it on the water, hoping that somebody will want it when it arrives. Three such shipments were called to the writer's attention last week. One cargo had been unloaded into rented storage and was being hawked about among dealers at seven and five-eighths cents per gallon at Atlantic seaboard, more than half a cent under the price quoted by most companies. California gasoline stocks are high—there was an accumulation of 6 million barrels in 1929.

Eastern seaboard market is in a turmoil and this condition eats away like acid at the edges of the interior markets. Another cut in the price of crude oil is not only feared but expected, by many executives unless some concerted course of action could be agreed upon. With as much difference in opinion as to what should be done as exists today, what could that action be?

There needs to be sharp curtailment in manufacture, which in turn could be translated back to crude production. That would involve an agreement of some kind among refiners. Here the heavy hand of the Sherman law is feared. The present attorney general has at all times shown a disposition to jump heavily upon anything that savored of an agreement within the meaning of the anti-trust laws. Witness the opinion passed last May upon the Holmes committee plan, which appeared to have met the terms indicated by the Federal Oil Conservation Board.

Demands that Congress Probe Oil Industry May Appear Again

There are, from time to time, demands made by this faction or that in the oil industry that Congress make an investigation of the price situation. Petitions have been addressed to Congress over the past three years by associations and individuals calling for such action. All have died. There are indications that renewal of such requests will be made. With Congress made more aware of the oil business by the tariff campaign and the New York-Vacuum merger, will these receive a different reception?

In view of the foregoing—the differences of opinion in the industry itself; the tariff agitation, with its charges of unfair and unwise use of power by the big corporations, including the one that the consumer has not benefited by the overproduction of the past three years; the merger trend—it is possible that the oil industry stands today much closer to some form of federal action than ever before. Henry L. Doherty, according to his own assertion, is ready to start on the warpath. His thesis is federal regulation of the industry that unit operation of oil and gas fields may be accomplished quickly. He asserts that no progress has been made, in practice, since he first began his crusade years ago.

It is true, of course, that the progress has been something like that of the frog who jumped two feet and fell back one. There has been considerable work of a practical kind done in the pooling of acreage. At this time most of it is to be valued as an influence on the future, rather than a present corrective. That is to say, there are many areas where exploratory wells will be drilled and they will be drilled on acreage commonly owned by all the companies who held original leases in the area. Each has assigned to the other an interest in his lease and binding contract has been drawn for the operation of the pool, when and if discovered, as a unit and under one management.

Flush Fields Not Protected By Unit Agreement

One major company in the Mid-Continent is now a partner in some 80 such pooling agreements. Only a few of them are active in exploration; the rest represent deals made far in advance of the date when the effective life of the leases will demand drilling.

Unfortunately or not, the fields now causing the trouble are not protected by such unit operation agreements. Oklahoma City would have been a splendid example, but the company that discovered it was unable to get all the acreage and was unable to work out cooperative measures and the usual competitive drilling campaign sprang up.

The general Seminole area, of course, was well started in development before the unit operation plan got under way. Kettleman Hills, in California, is another place where much trouble can be caused, although the federal government, through the Interior Department. has done splendid work in controlling it and seems in a fair way to keep the field from being a great market factor immediately. The government there is able to intervene as it is a large royalty owner.

Many pools could be cited, such as the Van Zandt county field in Texas, a recent discovery, where substantial progress has been made in unit operation. Mr. Doherty, however, can point to the present state of overproduction and prices ruinous to some, as evidence that the industry must be made to protect the petroleum resources and prolong the supply. He is one who has lived under regulation, through his public utility companies, and does not share the fear of that control that many of the oil men have.

His attitude on this question differs from that of many others, including certain of the Standard Oil Co. of New Jersey executives, in the matter of degree. It will be recalled that state legislation was sought in Texas by W. S. Farish, president of the Humble Oil & Refining Co., who has repeatedly asserted that stabilization of the industry will be effected only by the passage of adequate state laws.

It will also be recalled that James A. Veasey played a large part in the writing of a proposed state law which would compel the operation of the oil pools as units, when a majority of operators in the pool voted so to develop and operate the pool. Mr. Veasey is general counsel of the Carter Oil Co., another subsidiary of the Jersey company. The proposed law, drawn by a committee of the American Bar Association, aroused so much adverse criticism in Oklahoma and Kansas a year ago that it was never offered to a legislature for consideration.

Then there was the resolution of the American Petroleum Institute directors a year ago, endorsing the state legislative route to stabilization.

Mr. Doherty asserts that it will be impossible to get uniform laws in the states and that it would take too much time to get any kind of laws in some of them. He would expedite the whole matter by having Congress enact the appropriate measure.

It is not impossible for him to get something stirred up in Congress very soon and he might make headway, considering the general condition of things.

The chances are quite bright for a great deal of general hell-raising this season. From the New York-Vacuum merger, the whole petroleum situation may easily be opened up and with some clever guidance may result in almost anything. This is no ordinary temporary depression of oil prices due to a temporary flush production. The siege of the past three years has worn down the independent producer and refiner until his temper is short and he may embrace political philosophies and panaceas that he would not have given a moment's thought to in prosperous times. The last price reduction, one of them said, "cut my pocketbook nerve a little too deep."

Senatorial "Strategy" Plays Part In Keeping Oil on Free List

By A. E. Heiss

N. P. N. STAFF WRITER

WASHINGTON, March 3

PETROLEUM and its products are still on the free list of the customs tariff.

Late the last night of February the Senate, by a vote of 39 to 27, rejected an amendment to the pending tariff bill, offered by Senator Thomas of Oklahoma putting a duty of $1 a barrel of crude and 50 per cent ad valorem on its products.

Thereby it defeated the efforts of the delegation headed by Wirt Franklin, Russell Brown and Earl Calloway, representing the Independent Petroleum Association of America, whose membership is principally the independent crude oil producers of the Mid-Continent.

But the independents did not admit final defeat. They had no statement to make except that they were looking over their campaign with a view to continuing the fight.

They proceeded upon the assumption that what they regarded as their just cause could be placed upon its feet again whenever they could show a majority attained while the tariff bill was still in the Senate.

While it remains there it is still open to amendment. If it leaves that body with petroleum and its products still on the free list the fight in this congress will be over. The House of Representatives has acted on the bill. It will be sent to a committee of the two houses for a compromise of the differences between them. If there is no disagreement between them as to oil, there will be nothing to compromise. While many rules that formerly governed the conduct of the two houses have been broken there has never been a departure from the rule that no new matter could be put into a bill when before the conferees, as the compromisers are called.

Mr. Franklin and his associates, by their efforts, broke the ranks of the coalition of irregular Republicans and Democrats, as they knew they would have to do to come anywhere near winning. But when irregulars and Democrats departed from the coalition ranks, seven regular Republicans more than filled the gap. One of them was Reed Smoot, of Utah, chairman of the finance committee and nominal, not actual, leader of a majority of the senators. They saved the coalition. They again proved that politics make strange bed fellows.

Lumber Tariff Defeat Pointed the Way

Defeat of the Thomas amendment was suggested, when, a short time before the vote against oil, a proposal to give lumber the benefit of a protective tariff went down to defeat. There was a three-way understanding among the supporters of duties on lumber, oil and sugar. In other words a trade for votes that did not completely function. That was shown by the fact that Senator Smoot, from a sugar state, did not vote for a duty on oil.

Existence of that trade or understanding on votes enabled the coalition to bring to its aid a war machine invented in 1913, while the Underwood-Simmons tariff bill was under consideration. Technically it is known as the lobby investigating committee. Senator Caraway of Arkansas is chairman of it. Senator Walsh of Montana, who got fame in the naval reserve investigation by his efforts as the "prosecutor," is a member.

Its function is to bring out testimony about efforts that are made in behalf of a measure, in such a way as to suggest to the uninformed that, when citizens of good repute come here to tell their congressional servants what they wish done, those aforesaid citizens become the fictional character known as a lobbyist.

The fiction writers have created a character known as a lobbyist which is unknown to men who have reported the doings of legislative bodies all their lives, men of the type of Samuel G. Blythe.

They simply hoot at the stories representing the female lobbyist as beguiling lecherous fools among the law-makers into "betraying" their country and law-makers obeying male lobbyists as if they were marionettes, dancing when the lobbyist pulls the wire.

But, in 1913, the fact that the public believed there were lobbyists who twisted lawmakers around their fingers was made use of in aid of the Underwood-Simmons bill. It was so

good that the coalition of irregular Republicans and Democrats revived the game by appointing a lobby investigating committee to spy upon all citizens who came here to tell their servants what was desired in the way of legislation.

Its function is to smear or besmirch such citizens so as to reduce the opposition to the plans of the coalition to a minimum. That committee grabbed the accounts, letters, telegrams and other papers of Franklin and his associates, interrogated Franklin and in a questionable manner, made use of the material obtained from the papers taken from his headquarters. In the course of the investigation of Franklin and his associates it was brought out, as has been widely published, that Franklin had had lunch with President Hoover. It was also brought out that, in a letter addressed to Mr. Franklin by Representative Sproul of Kansas, it was asserted that, on Feb. 13, "W. S. Fitzpatrick, of the Prairie Oil & Gas Co., has been for some time in Washington and, while here, has been stopping with National Republican Chairman Huston and, while stopping there, dined with the President."

Representative Sproul's letter was intended to help the independents in their fight. In it he said several things that probably make it the outstanding thing brought out in the hurriedly put through plan of embarrassing the independents by haling them before the committee on the eve of the vote on the Thomas amendment. Senator Walsh, of Montana, read the letter to the committee. It follows:

Letter Comments on Fitzpatrick's Visit to Washington

"I thought you might be interested in knowing that W. S. Fitzpatrick, of the Prairie Oil & Gas Company, has been for some time in Washington and while here has been stopping with National Republican Chairman Huston and while stopping there has dined with the President.

"You understand perhaps that my predecessor, Mr. P. P. Campbell, is one of the lobbyists for the oil company and I think likewise, Mr. Frank Mondell, of Wyoming.

"You will remember that when I succeeded Mr. Campbell he was chairman of the Rules Committee, which at that time had a very tremendous power over legislation. The Committee still has a great power, but not so much.

"Mr. Mondell, as you may know, is the ex-Republican floor leader of the House, and has the reputation of being one of the high-powered lobbyists for big business.

"You probably know that Mr. Walter Newton, former Representative from Minnesota, is the President's legislative contact man. It has occurred to me that a little advertising might possibly aid the oil tariff cause."

Mr. Franklin freely admitted that he had made efforts to obtain support for the duty on oil by arranging to form a combination of those interested in having duties put on oil, sugar and lumber.

"I thought that that was the way things were done," said Mr. Franklin who evoked a smile from those who jammed the committee room, every one of whom knew that that was the way legislation was put through Congress and every other legislative body in the world and that the American name for that procedure was log-rolling.

There was no attempt on the part of Mr. Franklin to conceal or explain away anything that had been done in behalf of a duty on oil. But the committee read into the record many letters and telegrams making suggestions that were not acted upon by him or his associates.

As viewed by those familiar with political tricks, the object of the lobby investigating committee was to smear and besmirch those who came, as Mr. Franklin said he came, to present the plight of an industry. And the committee did smear Franklin and his associates, whether justly or otherwise being a matter of judgment. The smearing was done by the simple and old expedient of treating all suggestions made to Franklin and his associates as to how they should conduct their fight as if the plans therein suggested were those upon which Franklin acted.

Two Instances of How Senate Committee Smeared Franklin

Just two things will illustrate the faultiness of the premise upon which the smearing was done. Among the papers used by the committee was a letter from Los Angeles and a telegram from F. C. Tucker, executive secretary of the independents' association. These inquired, suggestively, if it would not be a good move on the part of the delegation to have a letter sent to President Hoover inquiring about the truth or falsity of reports circulated in the Mid-Continent and on the Pacific coast to the effect that he had an interest in South American oil lands.

Receipt of those communications was not even acknowledged by Mr. Franklin or Russell Brown, the latter in charge of the records of the headquarters in the Mayflower Hotel. They did not think enough of the suggestion to rebuke those making them for suggesting anything of the sort in a tariff fight. The other was the suggestion made to Mr. Franklin that he hire the stormy petrel of the prohibition part of the Department of Justice, Mabel Walker Willebrandt, for a fee of something between $5000 and $10,000 to help the delegation. That was not acted upon. Its making was not acknowledged in such a way that either Mrs. Willebrandt or her sponsor could find out what Franklin or his associates thought of it.

The suggestion was made by Cornelius C. Hamilton, described as president of the Sun Ray Oil Corp. He even went so far as to make an appointment for Mr. Franklin to call on Mrs. Willebrandt, which Mr. Franklin declined to keep. Mrs. Willebrandt was represented as having large influence at the White House and elsewhere.

This smearing of the producers asking for a duty on crude to save, as they said, their industry from destruction, was conceived, apparently, in secret and carried out at the eleventh hour, just before the question was to be voted upon.

The lobby committee, by its attorney, descended upon the headquarters of the delegation the night of Feb. 27 and notified Russell Brown to have all his books and papers at the committee room the next morning and told Mr. Franklin to be prepared to stand an examination by the committee. The committee's representative wanted to know whether Mr. Brown wanted a subpoena, requiring him to bring his books or Mr. Franklin to appear in person.

"Why, no, that is not necessary," said Mr. Brown. "We have nothing to conceal."

At the hearing Mr. Franklin, without the slightest hesitation answered all the questions. As usual with other witnesses when they tried to say why things had or had not been done, Mr. Franklin was advised to answer yes or no, regardless of how misleading the questions and answers might be. He said that no action had been taken upon the two facts used as illustrative. There was nothing in the files to indicate that the makers had even been thanked for their suggestions.

"I have refused to employ lobbyists," Mr. Franklin told the committee. "We are business men. We came here to present our cause to members of Congress directly and we have done so without hiring any outsiders."

With nothing more than the suggestions that had been made to the

delegation about President Hoover's supposed interest in South American oil land as a foundation Senator Blaine, of Wisconsin, raised his voice in what might be called a defense of the President, although everything he has done in the Senate has been in conjunction with the President's political enemies.

"They are even willing to trade the President of the United States for this bill," exclaimed Blaine. "They proposed to carry to Mr. Hoover a rumor that was prevalent in the Mid-Continent oil region that he was a large stockholder in petroleum producing companies in South America, extract from him a denial and then use that denial to advance the case.

"What would be the purpose of asking the President of the United States that sort of question?" asked the Wisconsin senator, still showing indignation in behalf of the President.

"If he were to answer, of course it would be assumed that the answer might be used for their benefit. They were going to be cautious about it.

Blaine Assumes New Role to "Defend" Hoover

"They proposed to go to the chairman of the foreign relations committee (Senator Borah) that they might obtain from him his position on oil. They were not frank. They had a subtle, slimy method designed to extract some information from the President and from the chairman of the foreign relations committee so they might use it."

For some undisclosed reason the Wisconsin senator did not permit the use of his remarks, as made in the Senate, to appear in the Congressional Record. The result was that on the day after the attack was made the men who had been castigated had no official record upon which they could base their reply, if they desired to make any. Mr. Franklin was in the Senate gallery while Blaine was making his speech. Blaine directed attention to him. Immediately after the roll call in the senate, the report was circulated that, if the independent producers had been able to bring out the vote, the result would have been closer. There is not anything in that. While 30 senators did not vote they were accounted for. They were paired so that the relative strength of the two sides was not changed. The seven regular Republicans who voted nay; Dale, of Vermont, Hale, of Maine, Keyes, of New Hampshire, Robinson, of Indiana, Smoot, of Utah and Vandenberg of Michigan, kept the coalition in command of the situation.

Without the votes of the seven regulars the amendment could not have been rejected. The Mid-Continent and southwestern producers made enough gains among the irregulars and Democrats to have put over a duty. But the answer of the regulars is that they voted to sustain the bill as reported by the finance committee. They have voted consistently to do that.

The vote was not as close as expected. For a time during the day neither side was claiming a margin of more than two votes. What influence caused the producers to lose the votes they had marked in their books as having been definitely promised, no one has discovered. The summoning of the lobby investigating committee, admittedly, was part of the strategy of the coalition. It has been used throughout the session to discredit any proposal not pleasing to the coalition leaders. Who suggested that the lobby investigating committee pounce upon the records of the delegation from the Mid-Continent has not been disclosed. The idea is attributed to Senator Norris of Nebraska. However, the idea has been so regularly used that there was little surprise on account of the move.

The lobby committee "revelations," judging from the inquiries that came to Washington, far overshadowed the serious arguments made for the imposition of a duty on oil, seemingly just as intended by the leaders of the coalition. They could hold the "revelations" over the heads of senators, timid about public reactions, who might be inclined, on the merits of the matter, to vote for a duty.

The arguments in the Senate, broadly speaking, were those made earlier by and against the delegation. Senator Thomas spoke for the duty in the opening skirmish on the subject. He was followed by Senators Goff, of West Virginia, Sheppard, of Texas, Hatfield, of West Virginia, Pine, of Oklahoma, Allen of Kansas, Bratton of New Mexico and Robsion, of Kentucky for the duty. Senators Copeland, of New York, and Tydings, of Maryland, spoke against the duty.

Presumably in aid of the duty Senator Pittman, of Nevada, who voted against it, offered an amendment limiting the duty to Jan. 1, 1934; also providing that, when crude became $1.75 a barrel in Texas and Oklahoma, and the price of gasoline in New York City became 18 cents a gallon exclusive of tax, the duty should not be operative. The first proposition was voted down on a roll call, overwhelmingly and the 18-cent proposition on a viva voce vote.

How Senate Voted

HOW the U. S. Senate voted on the Thomas amendment to remove oil from the free list in the tariff bill and impose a duty of $1 a barrel on crude and 50 per cent ad valorem on its products:

YEAS—27

Allen, Kans.	Cutting, N. M.	Johnson, Cal.	Sheppard, Texas
Baird, N. J.	Fess, Ohio	Jones, Wash.	Shortridge, Cal.
Bratton, N. M.	Goff, W. Va.	Kean, N. J.	Steiwer, Ore.
Brousard, La.	Goldsborough, Md.	Patterson, Mo.	Thomas, Okla.
Capper, Kans.	Grundy, Pa.	Pine, Okla.	Waterman, Colo.
Caraway, Ark.	Hastings, Del.	Ransdell, La.	Watson, Ind.
Connally, Texas	Hatfield, W. Va.	Robsion, Ky.	

NAYS—39

Ashurst, Ariz.	Frazier, N. D.	McKellar, Tenn.	Smoot, Utah
Barkley, Ky.	George, Ga.	McMaster, S. D.	Steck, Iowa
Black, Ala.	Hale, Maine	Metcalf, R. I.	Stephens, Miss.
Blaine, Wis.	Harris, Ga.	Norbeck, S. D.	Swanson, Va.
Borah, Idaho	Harrison, Miss.	Norris, Nebr.	Trammell, Fla.
Brock, Tenn.	Hawes, Mo.	Nye, N. D.	Vandenberg, Mich.
Copeland, N. Y.	Hayden, Ariz.	Pittman, Nev.	Walcott, Conn.
Dale, Vt.	Heflin, Ala.	Robinson, Ind.	Walsh, Mass.
Dill, Wash.	Keyes, N. H.	Schall, Minn.	Walsh, Mont.
Fletcher, Fla.	La Follette, Wis.	Smith, S. C.	

NOT VOTING—30

Bingham, Conn.	Gould, Maine	Moses, N. H.	Sullivan, Wyo.
Blease, S. C.	Greene, Vt.	Oddie, Nev.	Thomas, Idaho
Brookhart, Iowa	Hebert, R. I.	Overman, N. C.	Townsend, Del.
Couzens, Mich.	Howell, Nebr.	Phipps, Col.	Tydings, Md.
Deneen, Ill.	Kendrick, Wyo.	Reed, Pa.	Wagner, N. Y.
Gillett, Mass.	King, Utah	Robinson, Ark.	Wheeler, Mont.
Glass, Va.	McCulloch, Ohio	Shipstead, Minn.	
Glenn, Ill.	McNary, Ore.	Simmons, N. C.	

California Producers Support Tariff

LOS ANGELES, Feb. 28.—At a meeting of approximately 250 interested independent oil operators, Feb. 26, Wesley E. Disney, public prosecutor during the impeachment trial of Governor Walton of Oklahoma, urged California Independents to support a tariff of $1 on crude oil imported into the United States.

Disney, who also represented the National Association of Independent Operators, stated that California and other oil producing states have not been producing too much oil but that

foreign importations amounting to more than 109,000,000 barrels of crude oil in 1929 has brought about the present critical situation.

He warned the assembled operators that if they persisted in cutting their production they would soon be out of the picture as far as being a vital part of the oil industry and that because they curtailed did not mean that foreign oil would not continue to be unloaded on the U. S. market.

The meeting went on record as being in favor of the tariff and appointed members of the association to go to Washington to assist in the movement and asked other members to communicate with the California senators, informing them of their attitude.

Shell Notifies Willingness To Curtail World-Wide

NEW YORK, Feb. 27

THROUGH Richard Airey, president of the Asiatic Petroleum Co., a subsidiary company, the Royal Dutch-Shell interests of Europe announced today their willingness to participate in any reasonable plan to curtail world production of crude.

This statement, said Mr. Airey, was in answer to a resolution adopted by Mid-Continent operators Dec. 12, asking foreign producers to fit their development program to the program of restriction in effect in this country.

Notice of the resolution was sent to foreign producers by William N. Davis, president of the Mid-Continent Oil & Gas Association.

As far as Venezuela is concerned, where American producers are most anxious to see production restricted, the position of the Dutch-Shell interests is, according to Mr. Airey, that they could not enter any plan to restrict production there unless it were part of a general plan affecting other foreign fields as well. Mr. Airey said:

"We could not voluntarily shut in our production in Venezuela, for instance, if such reduction of output there, and therefore reduction of gross income for Venezuela, were to result in permitting us here in America, or in some other part of the world, to produce more oil at greater profit. The foreign government would not countenance such action. However, a similar curtailment, as part of a general world movement to restrict production and conserve oil, would be a different matter and, no doubt, could be arranged satisfactorily."

Mr. Airey was optimistic about the possibilities of advantage and profit from such a restrictive movement to all producers and all producing countries and appeared to believe that the difficulties of reaching a working agreement were not insurmountable.

Mr. Airey said his company would await word from Mr. Davis of any further plans. Mr. Davis, to March 3, had not been notified of the views of the Shell interests. Other American companies, with production in Venezuela, stated they had heard of no plan to restrict world production.

Tariff Plea Is Made To Ohio Marketers

COLUMBUS, O., Feb. 27.—Barrett Galloway, Ramsey Petroleum Co., Oklahoma City, presented to the meeting of the Ohio Petroleum Marketers Association the tariff case of the Independent Petroleum Association of America. Mr. Galloway was a member of the delegation of Independent producers from the Mid-Continent that journeyed to Washington recently to present their tariff arguments directly to President Hoover and members of congress.

Mr. Galloway said a tariff would not affect the price of gasoline and presented data which showed that when crude oil was much higher in price the price of gasoline was no higher than it is today.

He asked the Ohio marketers to support the producers' efforts for a tariff of $1 a barrel on crude oil and 50 per cent ad valorem on refined oils in order to keep the Independent producers in business and prevent a monopolization of the industry.

Herold Appointed Umpire In Kettleman Hills

LOS ANGELES, Feb. 28.—Dr. Stanley Herold, petroleum geologist and former professor at Stanford University has been appointed by Secretary Wilbur to act as umpire to determine an equitable distribution of proceeds of a percentage of the sale value of the oil from the producing wells on government permit land on the North Dome of the Kettleman Hills.

Under the provisions of the Kettleman Hills conservation agreement entered into last July by interested operators a percentage not to exceed 25 per cent and not less than 10 per cent of the sale value of the oil, was to be divided by a technical committee of four experts, among the operators on permit land who would suffer drainage through their agreement not to complete additional wells.

All four wells have been completed but Standard killed its No. 81 to go in search of deeper production and is now making preparations to set casing at 7055 feet.

The committee of four appointed for the purpose of fixing the percentage failed to agree for several reasons, necessitating the nomination of Dr. Herold. One of the experts claimed that the maximum figure of 25 per cent should be paid because the agreement did not provide for the distribution of proceeds from gas from this area which contributes approximately 35 per cent of the total revenue from the wells. Another claimed that the agreement called for the killing of the wells if possible and as he considered it was possible, the producing companies should pay the highest percentage.

Unit and cooperative plans for the development of this field are now before the Kettleman Hills committee and it is expected that a decision will be reached soon.

Asks Gasoline Price Probe In Montana

WASHINGTON, March 3.—Attorney General Mitchell, by resolution adopted by the Senate today, has been directed to make an investigation of the associations and corporations selling oil and gasoline in Montana with a view to determining whether they are fixing prices or are engaged in other practices in violation of the anti-trust laws.

Senator Wheeler, in justification of his offering the resolution said that while a great deal of oil was being produced and refined in Montana he had been informed that Montana was paying the highest price, or practically the highest price, for gasoline that was being paid in the United States. This, he said, was true in spite of the fact that it was not necessary for the gasoline companies to pay high freight rates because they piped the crude to the refineries.

He said he was told also that the Standard Oil Co., he did not specify which one, fixed the price of gasoline and that the small independent oil companies were obliged to follow suit by reason of the fact that they were afraid if they did not do so and keep up the price of gasoline, they would be put out of business.

The attorney general has been making investigations of that sort in several states and has caused indictments to be returned in California. It is suspected that he has been doing that in Montana and that Senator Wheeler, by introducing the resolution directing him to make the investigation, is seeking to obtain credit with his constituents, instead of allowing it all to go to the attorney general.

Tractor and semi-trailer of the Humble Oil & Refining Co. at a Humble bulk plant

Advantages of Tractor-Trailer Units Described to Illinois Jobbers

CHICAGO, March 1

SALESMANSHIP at the gasoline pump, economies of transportation with a truck and trailer unit, and credit policies were subjects discussed at the annual convention of the Illinois Petroleum Marketers Association in Peoria, Ill., Feb. 26 and 27.

The case for tractors and semi-trailers for delivering petroleum products was presented to the jobbers by R. E. Orwick, vice president and sales manager of the Lapeer-Trailmobile Co., Chicago, who asserted that this type of automotive equipment is rapidly replacing the heavy duty truck in our industry. Claims made for the equipment included:

1. Lower first cost.
2. Lower operating cost.
3. Greater flexibility and ease of operation.
4. Greater safety.
5. Better service to customers.

In buying a tractor to handle a given pay load it is possible to use one of much smaller capacity than would be necessary with a heavy duty truck, Mr. Orwick reported. For a 3-ton pay load he recommended a 1-ton capacity tractor; for a 4 to 5-ton load a 1½-ton tractor; for a 6 to 7-ton load a 2-ton tractor; 8 to 9-ton load a 2½-ton tractor; 10 to 15-ton load a 3-ton tractor; and for a 16 to 45-ton pay load a 5-ton rated capacity tractor. The speaker reported one operation in which a 2½-ton tractor makes a daily trip of nine miles pulling a 12 to 14-ton pay load.

A total saving for the first year of $880.93 was reported to the jobbers as possible by using a 1½-ton tractor hauling a 1000-gallon trailer 50 miles per day as compared with a 2½-ton truck with a 1000-gallon tank.

These savings were $226.25 for depreciation, $60 for tires, $60 for maintenance, $141 for gas and oil, $320 in initial investment and $33.68 for interest at 6 per cent on the difference in first cost and depreciation. Initial investment in the tractor and semi-trailer was given as $4170 of which $1600 was for the tractor, $1300 for the trailer and $1270 for the tank. The comparable truck investment was placed at $4490 of which $3490 would be for truck and $1000 for tank.

Mr. Orwick gave total depreciation on the tractor and trailer at $641.25 with the tractor depreciated 25 per cent per year, giving it a 60,000-mile life, and the trailer depreciated at 12½ per cent, giving it an 8-year life.

For the truck the speaker gave a total annual depreciation of $907.50. The truck was depreciated at the 25 per cent rate and the tank at 12½ per cent.

Maintenance and repair of the tractor-trailer unit was figured at 2 3/5 cents per mile or $390 per year and at 3 1/10 cents per mile or $450 per year for the truck. Gasoline consumption of the tractor-trailer was estimated at 7 miles to the gallon as compared with 5 miles to the gallon for the truck.

Mr. Orwick told the jobbers that early belief that a more competent driver was necessary with the trailer unit has been overcome. The semi-trailer can be jack-knifed like the old team and wagon and hence can be used where a truck of similar capacity could not. Use of one tractor only for tank and stake bodies at small bulk plants was haled as an important advantage in reducing investment in motors.

On the score of safety Mr. Orwick pointed out that it is possible to lower the center of gravity on a trailer for the use of a drop frame where that is not possible on a truck. Tanks are removed from hot exhaust pipes. In case of fire to either member, the other can be unhooked and moved to safety. Unhooking can be done from the driver's seat in 10 seconds.

Now that 4-wheel brakes on tractors can be used in conjunction with brakes on trailers it is possible to make greater speed with safety.

In case of accident to either tractor or trailer substitution of the uninjured unit can be made quickly where available and service given to customers more quickly than might be possible with a heavy duty truck, Mr. Orwick reported.

In electing officers for 1930 H. P. Poland, Poland Oil Co., St. Louis,

was chosen president, and George W. Prescott, Prescott Oil Co., Dixon, vice-president. G. A. Primm was re-elected executive secretary.

Members of the board of directors who were re-elected were William Breitweiser, Belleville; J. W. Hart, Rockford; F. A. Muench, Carlinville; H. G. Richardson, Quincy; and F. E. Morrison, Marion. New members of the board are C. I. Larson, Orient Petroleum Co., Elgin, and E. P. Smith, Madison County Oil Co., Edwardsville.

Registration was about 400, with 26 equipment companies exhibiting. At the banquet Feb. 26 attendance was 432, the highest at any meeting in the history of the association. Dick Bradley, a humorist, spoke at the banquet. Luncheons were held each day with entertainment provided by the Peoria Oil Exhibitors.

Credit policies for the oil jobber were discussed by W. Z. Brown, credit manager of Producers and Refiners Corp., Independence, Kan. He outlined factors to be considered in granting credit, and the bookkeeping methods necessary for an adequate credit and collection system.

Observations of salesmanship at the gasoline pump were told by R. L. Swats, director of the LaSalle Extension Corp., Chicago. He urged more salesmanship at service stations through more efficient attendants.

Carl Beroth, president of the Acme Petroleum Corp., Chicago, told of the Illinois association's achievements in the past year, and of the organization's work in legislation, especially on oil taxation and inspection.

Workings of the new inspection law which went into effect last August were told by W. W. Miller, director of the division of oil inspection in Illinois.

The marketing code of ethics was the subject of N. R. Grimshaw, assistant general manager, Standard Oil Co. of Indiana. Mr. Grimshaw said his company has been 100 per cent for the code of ethics, and that it was living up to the code to the best of the ability of a large company with many employees.

Sun Oil Gasoline Pipe Line To Tap Great Lakes

CLEVELAND, March 1

THE Sun Oil Co. is the latest big oil company to announce a wide expansion of its marketing facilities.

On March 1 it entered Cleveland with gasoline distribution at 30 independent stations. It started a weekly radio broadcast through 10 stations from Chicago eastward.

The company has decided definitely to extend its gasoline pipe line to Cleveland. This line was announced in January as extending from the refinery at Marcus Hook, Pa. westward into Pittsburgh and possibly to the Great Lakes in Ohio. Negotiations are being closed now for a 25-acre tract along the Cuyahoga river in Cleveland for a pipe line terminal.

The line will be a common carrier, constructed of six-inch pipe, with a capacity of about 15,000 barrels of gasoline daily. Cost is estimated to be about $5,000,000. It will be the first gasoline pipe line of any considerable length to be built.

The line as announced so far will tap a rich marketing territory through Pennsylvania into Ohio. This latest announcement places the line from Pittsburgh through Youngstown, O. into Cleveland, a territory rich in industrial plants of the iron and steel and the coal industries. Other terminals for the line are proposed for Toledo, O., where Sun has a refinery, and on the New York barge canal through Binghamton, N. Y.

The Cleveland terminal will be on the river, navigable by Great Lakes boats, thus opening up the northern inland water system to transportation of gasoline from the Atlantic coast and moved to the Lakes by pipe line.

At present the Great Lakes is being utilized by two large oil companies for transporting petroleum products. Both companies have refineries in the Chicago area. One company is moving goods to marine terminals on the upper lakes. The other company is sending its tanker to terminals at Detroit and Cleveland, and is building another terminal at Toledo, O.

The Sun Oil Co. terminal at Cleveland will have bulk gasoline storage, warehouses and an office building. Cost of the terminal will be about $250,000.

H. R. Swartwout
Manager of the Sun Oil Co.'s office in Cleveland

Sun Oil Co. made its first move to obtain gasoline distribution for the new terminal in Cleveland with 30 independent stations taking on Sunoco products March 1. These stations were obtained under a dealer's lease agreement, or are split account stations. None is company owned or operated.

To serve these 30 stations now Sun has leased a bulk storage plant in Cleveland and will bring in gasoline in tank cars from its Marcus Hook refinery. Two trucks are operated from the plant. Previously Sun's distribution in Cleveland was in oils and greases through a warehouse here.

H. R. Swartwout is manager of the Cleveland office which sells in counties in northeastern Ohio. He is increasing his staff now to manage the new business.

The weekly radio programs, first on the air Feb. 25, mark another expansion in the company's business. These programs are available through ten stations in the eastern part of the United States and in Canada.

Radio stations broadcasting the "Sunoco Show" are WJZ, New York; WBZ, Springfield, Mass.; WJR, Detroit; WCKY, Cincinnati; WHAM, Rochester, N. Y.; WBZA, Boston; WBAL, Baltimore; KDKA, Pittsburgh; KYW, Chicago; and CKGW, Toronto. Programs are provided by a 35-piece orchestra for a half hour beginning at 9:30 p. m., eastern standard time, each Tuesday.

J. Howard Pew is president of the Sun Oil Co.; and the vice-presidents are J. N. Pew, Jr., J. Edgar Pew, and Samuel B. Eckert. The company is an integrated company with branches in Europe, the Far East, Australia, South and Central Americas.

Refineries of the company are in Pennsylvania, Oklahoma, and Ohio. The plant at Marcus Hook, Pa. has 30,000 barrels capacity; that at Toledo, O., 17,000 barrels; and at Yale, Okla., 5,000 barrels. Producing properties are in the Mid-Continent, Central States, Michigan, and Rocky Mountain fields. Producing leases total about 26,000 acres, and 1,600,000 acres of undeveloped leases are held.

The company refines and sells one grade of gasoline to the public, Blue Sunoco motor fuel.

In 1901 the company was organized under the name of the Sun Co., and in 1922 the name was changed to the Sun Oil Co. Among the many subsidiary companies is the Sun Ship Building & Drydock Co.

New Setup of Committees On Code Is Announced

NEW YORK, March 1

THE AMERICAN PETROLEUM INSTITUTE setup of committees on the code of marketing practices has been changed, W. R. Boyd, Jr., executive vice-president of the institute, announced today.

The general committee on the code, of which Roy B. Jones, Panhandle Refining Co., was chairman, and the regional sub-committees, all of which drafted the code, have been abolished.

In their place is a standing committee on the code, as a part of the institute division of marketing, and eight regional committees. Mr. Jones is chairman of the standing committee and its function will be to consider such revisions and changes in the code as may be proposed from time to time. It will make its recommendations to the general committee of the division.

The regional committees are boards of conciliation and adjustment. They are made up largely of the sales executives of principal companies and the chairman of the state code committees. The state committees are to continue in existence just as made up at present. Where questions of interpretation and adjustment under the code involve more than one state, the regional committee is to take up the question.

Mr. Boyd stated that there are at present no proposed revisions of the code to be considered by the new committee and that, in his opinion, the adoption and putting into practice of the various provisions of the code was proceeding satisfactorily.

The makeup of the general standing committee on the code of the institute division of marketing is as follows:

Roy B. Jones, Panhandle Producing & Refining Co., Wichita Falls, chairman. Other members are U. deB. Daly, Shell Petroleum Co.; R. C. Holmes, The Texas Co.; W. M Irish, Atlantic Refining Co.; K. R. Kingsbury, Standard Oil Co. of California; P. M. Miskell, Empire Refineries, Inc.; J. Howard Pew, Sun Oil Co.; E. G. Sheubert, Standard Oil Co. of Indiana and E. T. Wilson, Continental Oil Co.

Following are the chairmen of the various sub-committees:

H. D. Collier, Standard Oil Co. of California, San Francisco, is chairman and R. W. Martin, Union Oil building, Los Angeles, is secretary of the Pacific coast region, covering Washington, Oregon, California, Nevada, Arizona and Territories of Hawaii and Alaska.

F. C. Cramer, Denver Powerine Co., Denver, for the Rocky Mountain region, covering Montana, Idaho, Wyoming, Utah, Colorado and New Mexico.

Mr. Jones for the southwestern region of Texas, Arkansas and Louisiana.

Mr. Miskell for the Mid-Continent region of Oklahoma and Kansas.

L. S. Westcoat, Pure Oil Co., Chicago, for the middle western region of Wisconsin, Minnesota, Indiana, Michigan, Ohio, North and South Dakota, Illinois, Missouri, Nebraska and Iowa.

H. H. Fuller, Sinclair Refining Co., New York, for the northeastern region of Maine, New Hampshire, Vermont, Rhode Island, Connecticut, New York, and Massachusetts.

C. G. Sheffield, Standard Oil Co. of New Jersey, New York, for the eastern region of Virginia, Pennsylvania, Delaware, New Jersey, Maryland, District of Columbia, North and South Carolinas and West Virginia.

W. G. Violette, Standard Oil Co. of Kentucky, Louisville, for the southwestern region of Georgia, Florida, Kentucky, Tennessee, Alabama and Mississippi.

Blackmer Has Banner Year

CLEVELAND, March 3.—Reports submitted at the annual meeting of the Blackmer Rotary Pump Co. at Grand Rapids, Mich., recently showed the company's business to have been the largest since the company was organized nearly 30 years ago. At the time of the meeting orders were coming in at a rate which indicates that 1930 may be an even better year.

Following officers were elected at the meeting: A. B. Klise, president; B. S. Klise, vice president; and M. G. Klise, secretary-treasurer. The directorate also includes George S. Schaffer and J. H. Oldham.

How Price Competition May Be Met May Be Settled in Court

CLEVELAND, March 3

IF THE 13 major oil distributors in New England that were indicted on charges of conspiring to create a monopoly in gasoline sales and to wreck the business of the Keith Oil Corp. of Brockton, Mass., stand trial on the indictment, the question of how far oil marketing companies can go in meeting low price competition, may be settled for all time.

The 13 companies indicted are the Standard Oil Co. of New York, Beacon Oil Co., Cities Service Refining Co., Jenney Mfg. Co. of Boston, Richfield Oil Corp. of Massachusetts, Tide Water Oil Sales Corp., Shell Eastern Petroleum Products, Inc., The Texas Co., Gulf Refining Co., Sun Oil Co., Atlantic Refining Co., Sinclair Refining Co., and Mexican Petroleum Corp.

In addition eight district or local managers were indicted on the same charges. The individuals are: Charles B. Jones, and Donald G. Smith, Standard Oil; Harry J. Selig, Tide Water; Herman Halverson, Gulf; Harold W. Boyton, Shell; Roy K. Clark, Beacon; and Joseph Kelley and Wilfred H. Holt, Cities Service.

Pleas of not guilty were entered for 10 of the companies and the individuals but Sinclair and possibly Sun and Richfield are expected to attack the action on legal points.

The defendants are accused of having cut the price of gasoline 2 cents a gallon Jan. 1 in Brockton, Avon, Randolph, Holbrook, Whitman, Rockland, Abington, Easten, Stoughton and Canton, municipalities in which the Keith corporation markets gasoline, but not elsewhere in the territory where the defendants market gasoline. The Keith corporation had been selling gasoline 1 cent a gallon under the market of its major competitors, according to a statement issued by District Attorney Winfield M. Wilbar of Plymouth county, Mass.

The district attorney early in January had samples of the gasoline sold by the defendant companies brought for analysis to prove that the quality of the gasoline sold at the 2-cent reduction was the same as sold for a higher price elsewhere in their territories. Tank trucks of the defendant companies were trailed to ascertain whether they made deliveries in both cut price and other territory.

Three attempts were made by the defendant companies to buy the Keith corporation, according to the district attorney's statement, and when the Keith company refused to sell threats were made to put it out of business. The Keith corporation had arranged for tide water terminal facilities on the Taunton river when the price was cut.

On conviction defendant corporations are subject to fines of not less than $500 nor more than $5000 but may be subject to revocation of charters which would prohibit them from doing business in Massachusetts. The individuals are subject to like fines but may also be imprisoned in the Massachusetts house of correction for not less than one month nor more than one year.

Review of Late Production News

FOUR flush California fields which gained 79,000 barrels the week ended Feb. 22, retreated 86,800 barrels daily average last week when the new proration plan became effective.

This decline, plus one of 30,000 barrels in Oklahoma, brought about a decrease of 98,100 barrels in U. S. daily average production for the week ended March 1, according to the American Petroleum Institute. The country's output for the past week was 2,623,950 barrels, compared with 2,722,050 barrels the previous week.

New crude supply was lowered to 2,909,810 barrels the past week, indicating a decrease of 139,955 barrels under the previous week. Crude imports decreased 41,855 barrels, being at the rate of 285,860 barrels the past week.

The largest change in Oklahoma was in the East Earlsboro field which fell off 15,550 barrels in daily average production and in Little River, which declined 10,550 barrels. Oklahoma City declined 4650 barrels.

In California, Santa Fe Springs declined 55,000 barrels, Long Beach and Ventura Avenue both over 11,000 barrels, Seal Beach 5200 barrels and Midway-Sunset 4000 barrels. Elwood-Goleta gained 4300 barrels.

California

PRODUCTON of crude oil in California for week ended March 1 was estimated to have averaged 719,000 barrels per day, a decrease of 86,200 barels per day under the estimate for the previous week.

Although some difficulty was experienced by operators in the high pressure fields in beaning in their producing wells so as to bring the state's daily production down to approximately 609,000 barrels it is expected that at the close of the week ending March 8 the new curtailment measures will be in full effect.

March 1 was set as the beginning of the state-wide proration movement, and although it is doubtful if crude oil production will be reduced to the desired figure, conservationists are expected to be satisfied with a total of 630,000 to 650,000 barrels.

With the possible exception of Kettleman Hills, California fields are not expected to afford leaders in the industry any anxious moments provided the present curtailment program is made effective for 60 to 90 days. In the opinion of many petroleum engineers natural decline will have taken such a toll of the state's potential output within 60 days that additional curtailment will be unnecessary.

Current production in this country by pools is found on page 89.

Texas, New Mexico, Louisiana

THE fourth producing well completed at the 8500-foot level in the Big Lake field of Reagan county, West Texas, continues in an incomplete stage after flowing 36 barrels of high gravity oil in six hours and then bridging over. It is not only the deepest producing well in the field, but also in the world, having wrested such honors from the Texon Oil & Land Co. (Continental Oil Co.) discovery well at Big Lake.

The new well, total depth 8540 feet, belongs to the Big Lake Oil Co. It is known as C-3 University. Two earlier wells of the Big Lake company in the same pay are C-2 University, making 619 barrels of oil and 13,611,000 cubic feet of gas daily, and C-4, making 155 barrels of oil and 4,263,000 cubic feet of gas daily. The Texon discovery, which has gradually increased its production since completion as a 100 barrel well, Dec. 1, 1928, now makes approximately 3000 barrels daily.

Barnsdall Oil Co.'s first well in Lea county, New Mexico, its No. 1 F. B. Bronson, in 28-16S-38E, is shut in at 4012 feet after standing 200 feet of oil in the hole.

A showing of oil at 4540 feet, in the Trinity beds, gives promise of Lower Cretaceous production in the area 18 miles southeast of the old Homer field of Louisiana. The test, in 7-19-5W, is being put down by the Triangle Drilling Co., on the Kilpatrick farm.

Oklahoma-Kansas

THE MID-CONTINENT was quiet during the week. Three new wells were added to the Oklahoma City pool, but did not extend the proven area. The Konawa pool south of Little River was extended a half-mile to the southwest by a good completion.

Two more wells were drilled in in the Finley pool of Gray county which were regarded as proof of continuity rather than as extensions of known territory. A meeting has been scheduled to further restrict developments in this area. It is thought it will take the form of a strict reduction of drilling rather than proration of those wells already in.

Vertical correction for crooked hole brightened the prospects for the western part of the Voshell pool, McPherson county, Kansas. Wells along the western edge had previously been reported as running extremely low on the top of the Mississippi lime.

Wyoming, Montana

MIDWEST REFINING CO. has an important discovery in Sec. 35-40-79 in the heart of the Salt Creek field where it has a 500-barrel flowing well in the Tensleep formation with the hole bottomed at 3797 feet and only 7 feet in the pay sand. It is feeling ahead cautiously and has not decided whether to case off the oil and go on down with the test or not. The well was started to make a thorough test of all the sands to the granite which is expected at 5500 feet. Production in the Tensleep was a surprise as the Madison is where the big production is anticipated by company geologists.

The well had good pays in the first and second Wall Creek, the Lakota and Sundance. In the Sundance it had a flow of 5000 barrels daily.

Dissolution of Patent Club Does Not Affect Validity of Patents

By Arch L. Foster
N. P. N. STAFF WRITER

SINCE the decree of the U. S. District Court at Chicago was handed down recently in the patent club case there has been a tendency among some refiners to the thought that the decision had a bearing on the validity of the individual patents which went into the cross licensing agreements.

The thought has been expressed that the cracking field may be opened to the extent that individual refiners might design their own plants using well known principles.

As a matter of fact the opinion of the court upheld the findings of the special master that the patents are valid as improvement, method and apparatus patents. The court did hold, however, that none of the patents involved is a basic patent covering cracking as such. Findings of the court adverse to the patentees dealt solely with the use to which patents were put.

The accompanying review of the court's opinion handed down last June, 6 months before the decree was announced, is given to clarify the thought of refiners who may not have studied the action of the court carefully.—Editor.

WHEN the "Patent Club" was dissolved by decree of the U. S. District Court issued at Chicago on Jan. 20, 1930, the decision of the court concerned only the agreements entered into by the defendant oil refining companies, which, in the opinion of the court, were in violation of the Sherman Anti-Trust act, and served to restrain trade by controlling the manufacture of gasoline through control of patents for cracking processes. The validity of the patents involved was not affected.

To review briefly the history of the litigation leading up to the decree, the government brought suit in the District Court at Chicago, on June 25, 1924, against the Standard Oil companies of New Jersey, of Indiana, of New York, the Standard Development Co., The Texas Co., the Gasoline Products Co. and others alleging a monopoly in the manufacture and sale of gasoline through control of cracking patents, made possible by a series of agreements and cross-licenses between the primary defendants.

Seventy-nine agreements had been made, in which the defendants agreed not to bring suit against each other to test the validity of different patents held by the various companies, each to permit the other to use and to license the use of its patents and processes. Contracts were also made fixing the royalties to be paid, and providing for certain options by companies on surplus production of gasoline by other refiners adhering to the agreements.

On March 13, 1925 the court appointed Charles Martindale of Indianapolis as special master to take testimony in the case, who began taking testimony Oct. 11, 1926, and who made his report, in 384 printed pages, to the court on Dec. 6, 1926. This report favored the defendants in all points. The court handed down its decision on June 11, 1929, reversing the findings of the master in several points, and directing counsel for both parties to agree on the terms of the decree to be issued, and report same to the court.

Counsel for the different parties were unable to agree on terms, and submitted separate reports to the court. The result was the decree of Jan. 20, 1930, dissolving the agreements between the companies as creating a monopoly in violation of the Sherman Act.

Special Master Found Patents Valid

The special master, in his report, had found that the several patents involved in the agreements were valid. The decision of June 11 states that "for the purposes of this suit, we are not willing to disturb the master's finding that the patents are valid." The decision further concluded that the patents are not basic, that they cover improvements of the art only, and that all claims made in them are to be construed accordingly.

"It by no means follows, however, that because the claims of a patent merely cover improvements, and must be denied a wide range of equivalency, that they are unimportant or that the inventor did not make a real contribution to the art. Moreover, if a narrow patent is valid, it furnishes as sufficient a consideration for a contract based on it as would a pioneer or basic patent and it is as legitimate a subject of cross-license agreement as is a basic or pioneer patent."

The decision also upheld the right of the defendants to cross-license each other in the practice of the art set forth by their patents, but stated that it is unlawful for them to enter into agreements, the effect of which is to extend their monopoly beyond the limitations fixed by the patent grant. Any patent grants a practical monopoly of the matters covered by the valid claims therein; but the illegality of any agreement which otherwise violates the Sherman act is mitigated only to the extent of the monopoly granted by the patent.

In this case it was held that, by cross-agreements, the legal monopoly granted each of the defendants by patents held by them had been exceeded to such an extent that markets are controlled and prices fixed by fixing license royalties. Pooling

Making Over a Refinery

THE ASHLAND REFINING Co., Ashland, Ky., took over an obsolescent refinery and made it into a modern paying proposition with a minimum of expense for new equipment. How it was accomplished is told in an article in this issue starting on page 51.

Four shell stills, running independently as batch stills, were connected to form a continuous battery. Six modern bubble towers were added to the system, up-to-date condenser coils replaced the old plain pipe coils. The condensers were so interconnected that any one or more towers may be cut out of the battery, without shutting down the plant. The same is true of the shell stills themselves.

A series of heat exchangers, settling tanks and preliminary flash towers permit the maximum utilization of heat from the long residuum from the last still, and from overhead vapors.

These steps and others are explained in detail in the article.

of proceeds from these royalties and providing for the division of such a pool are also illegal. The decision further states that "insofar as these agreements are license agreements they are unobjectionable. To the extent that they go beyond license agreements they are subject to the inhibitions of the Sherman act."

Domination of Industry Factor in Agreement Legality

It appears then, that it is the extent to which the industry may be dominated by contracting parties that determines the legality or the illegality of the agreements made, rather than the principle of cross-licenses, agreements, pools, etc.

Significant also is the decision of the court regarding advance agreements between contracting parties concerning patent suits. The parties in the patent club agreements had "purchased immunity from attack" by agreeing not to contest the validity of each others' patents, thus imposing a burden on the public not the purpose of patent law. "Such agreements," it is further stated, "violate the letter and the spirit of the patent law and are contrary to public policy." In other words, it is unlawful for parties to make advance contracts not to contest the validity of, or infringement by, patents dealing with a common art.

Referring to the contention of the defendants that the cross-licenses were made in good faith and to avoid infringement suits, the court determined that the principal patents under discussion may be practiced without infringement.

After the agreements each primary defendant continued to operate under the teachings of its own patents, and did not adopt any of the processes represented in the patents of the other defendants. It was, therefore, not necessary to insure themselves against suit by entering into these agreements.

Nor were the agreements necessary to protect the patent owners in the exercise of their exclusive rights conferred by their severally owned patents. "There appears no logical relation between the protection which attached to the exclusive *right* which arose from the issuance of the patents and the agreements which the holders of the patents generally entered into. The agreements therefore transcend what was necessary to protect the patents, and come within the operation of the Anti-Trust Act."

The owner of a patent may fix the royalty to be paid by a licensee and may within a limited field demand as part of the contract the use of the competitor's patented process. "But such patentees may not, when to a large degree they dominate the trade, enter into an agreement for the pooling of their royalties and thereby increase the tribute exacted from the users."

Since the decision of the court affected only the inter-agreements made by the defendants, and since the master's finding that the patents are valid was not disturbed in the decision, it is not to be concluded that the dissolution of the club affects in any way the rights of the defendants to the protection given by their patents.

Infringers of these patents are quite as subject to suit as they were had the patent club never existed, the restrictions placed on users of cracking processes are as stringent as though the defendants had never entered the agreements dissolved by the decree. A proper understanding of the effect of the decree and of the unchanged status of the patent rights owned by the defendants in the suit will doubtless aid outsider refiners in avoiding unnecessary complications in cracking litigation.

Barnsdall's Gasoline Line Approved by Directors

TULSA, March 1.—The plan of the Barnsdall Oil Corp. to build a gasoline pipe line from the Mid-Continent through middle western territory, perhaps as far north as Milwaukee, was approved by its directors in New York Feb. 26. The plan was first announced a few weeks ago.

It is understood that the construction of the line will cost in the neighborhood of $10,000,000. The method of financing has not yet been determined. Purchase of right of way is now being made. Preliminary engineering estimates have been made on the basis of a six-inch welded line.

The Barnsdall line would probably originate at its 11,000-barrel skimming and cracking plant at Okmulgee, Okla. It would pass close to the 5000-barrel refinery at Barnsdall, Okla., and a branch could run to the plant at Wichita, Kans. The line would probably run through eastern Kansas to Kansas City, north through the rich farming district in Iowa, and across Illinois.

Institute Marketing Head On Tennessee Program

NASHVILLE, Tenn., March 3.—There will be a two-day session, instead of a one-day as first announced, of the Tennessee Oil Men's Association at Chattanooga, according to L. W. Collins, executive secretary. The meeting will be held on March 14 and 15 at the Patten hotel.

Besides interesting short talks, there will be addresses by two speakers outside of the association, one of whom is W. Z. Brown, credit manager, Producers & Refiners Corp., Independence, Kans., and the other, Paul E. Hadlick, recently appointed secretary of the marketing division of the American Petroleum Institute.

Mr. Brown's address will tell of economies for jobbers and Mr. Hadlick will talk on the code of marketing ethics.

There will be exhibits and snappy entertainment, Mr. Collins says.

American Petroleum Institute report of refinery operations in the United States for the week ended Mar. 1, compared with the week ended Feb. 22

Districts	Per Cent of Capacity Reporting	Daily Av. Crude Run to Stills Wk. Ended Mar. 1 (Barrels)	Daily Av. Crude Run to Stills Wk. Ended Feb. 22 (Barrels)	Per Cent of Reporting Capacity Operated Wk. Ended Mar. 1	Per Cent of Reporting Capacity Operated Wk. Ended Feb. 22	Stocks Reported in Thousands of Barrels: Gasoline Stocks Mar. 1	Gasoline Stocks Feb. 22	Gas & Fuel Oil Stocks Mar. 1	Gas & Fuel Oil Stocks Feb. 22
East Coast	100.0	487,500	452,200	80.5	74.7	8,433	8,409	6,391	6,244
Appalachian	91.0	82,900	80,000	71.1	68.6	1,679	1,656	677	654
Ind.-Ill.-Ky	98.6	303,900	275,500	85.6	77.6	7,804	7,601	3,000	2,960
Okla.-Kan.-Mo	89.1	271,200	282,800	65.9	68.7	4,698	4,650	3,222	3,104
Texas	90.7	604,700	600,600	85.7	85.5	8,097	7,853	12,006	12,107
La.-Ark	96.8	185,800	179,900	70.9	68.7	2,686	2,772	2,092	*2,204
Rocky Mountain	93.6	55,300	57,300	39.7	41.1	2,925	2,831	1,042	1,036
California	99.3	608,800	*587,900	68.3	*66.0	15,868	*15,962	109,781	*109,825
Total U. S.	95.5	2,600,100	*2,516,100	74.6	*72.2	52,190	*51,734	138,211	*138,134
Texas (Gulf Coast)	100.0	466,500	459,800	88.6	87.8	6,919	6,768	9,365	9,479
La. (Gulf Coast)	100.0	116,800	116,300	79.2	78.8	2,353	2,440	1,261	1,401

*Revised.

Monopoly Charge Against Pipelines Hurled by Texas Governor

By Paul Wagner
N. P. N. STAFF WRITER

AUSTIN, Texas, Feb. 28

GOVERNOR DAN M. MOODY told a group of approximately 200 oil operators gathered in Austin, Feb. 27, that he had "no objection to submitting" their proposed legislation against pipe line companies to the fifth special session of the general assembly "if convinced it will achieve the purposes sought."

Adding that he "didn't know whether the purposes of the operators could be accomplished by law or not," the governor expressed sympathy with steps or movements "that will alleviate you gentlemen from the monopoly that now exists in transportation."

The governor made plain in his address that he had no intention of submitting to the present special session, or at any time in the future, the proposed "permissive agreement" legislation for which larger Independents affiliated with the Texas division of the Mid-Continent Oil & Gas Association have been working.

Small Independents asking pipe line legislation seek to have the carriers declared public utilities. Powers to be lodged in the Railroad Commission of Texas, functioning as the state's industrial control board, would give jurisdiction over pipe line rates, provide for ratable takings of crude from wells in the individual fields served, would make transportation agencies common purchasers and would regulate crude oil storage for hire.

Common purchasers would be designated as "every person, association of persons, or corporation, now or hereafter engaged in the business of producing crude petroleum, which is affiliated through stock ownership, common or controlled, contract or otherwise, with a common carrier by pipe line, or is itself such common carrier."

With regard to the governor's opposition to the cooperative development legislation previously proposed, Moody announced his belief that it originated from the Standard Oil companies and said "its passage would be disastrous." It was his expressed opinion that such legislation would put the small Independent operator out of business and would destroy the Texas anti-trust law.

Discussing the history of cooperative development proposals of the past, Governor Moody told of his opposition to measures presented in Texas at various times in the last two years. Mentioning Mark L. Requa's visit to him a year ago in attempting to promote interstate compacts, as a conservation measure, Governor Moody said he did not "propose to deliver Texas into the hands of the trusts." He saw in the initial steps then taken, the governor said, a movement toward federal control. He was not willing, he said, to surrender any of the state's rights.

Although the governor did not agree unqualifiedly to submit the "pipe line relief," without which submission from him it cannot come before the special session, he intimated that if finally drawn to meet his approval the measure would be presented.

THE final draft of the proposed bill was being ironed out at the end of the week by a committee of 14 lawyers representing the Independent Petroleum Producers Association of Texas, under whose banner the operators made their Austin trip.

A separately formed Wichita Falls district organization of producers, which had been previously working at Austin in favor of cooperative development legislation, joined hands with the larger group of smaller independents in backing the pipe line measure. That group, which still believes in cooperative development legislation as an important conservation measure, had to abandon activity at this time because of the governor's attitude.

The governor's stated position also brings to an end the efforts of a steering committee appointed by the Texas division of the Mid-Continent Oil & Gas Association to curtail current production within the state. The steering committee's only hope for relief had been through remedial legislation which would permit operators getting together for discussions of ways and means to alleviate the flood of oil coming above-ground at present.

Without remedial legislation, the operators are described by committee members as hemmed in by drastic laws peculiar to the state of Texas which apparently prevent extension of prorating activities beyond the limits of curtailment in force the last two years.

Some of the Independent group of operators meeting at Austin expressed the feeling that passage and application of a common purchaser statute would bring about automatic prorating of crude oil production, because such legislation would force extension of pipe line facilities to properties in fields with which transportation agencies are not now required to connect.

In the case of wells in flush fields, it was pointed out by Tom E. Cranfill of Dallas, president of the Independents, that a producing company with pipe line affiliation could not fill its lines with its own oil and refuse to connect with the owner of an offsetting property, but would be required to take oil ratably from both.

A credit balance clause in the bill, patterned somewhat after what has been known as the old West Virginia law, had not been worked out by the organization's legal committee at the time of the conference with the governor and various legislators of both houses. It was proposed to have it ready, however, for inclusion in the final draft of the bill the governor was asked to submit to the legislature.

The association's legal committee consists of Charles L. Morgan, Lloyd E. Price, Ernest May, Cal Estill, Clyde Bellew and Tillman Perkins of Fort Worth; Marion Church and C. L. Hardy, Dallas; E. H. Eddleman, Charles I. Francis and John Kilgore, Wichita Falls; Tom Grisham, Abilene, and John Yowell, San Angelo.

By Telegraph

HOUSTON, Mar. 3.—Governor Dan M. Moody introduced in the fifth special session of the legislature March 3, the subject of "Protective" legislation sought by the Texas Independent oil operators against pipe line companies.

This opened the way for introduction of the proposed bill incorporating common purchases, storage and credit balance provisions sought by the group headed by Tom E. Cranfill which visited Austin last week.

A final draft of the pipe line relief bill was completed Monday and introduced late in the day.

Restrictions of Pipe Lines Force Reductions at Oklahoma City

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, March 1

ONE of the most drastic proration moves ever made in a major pool of the Mid-Continent has been put in effect by the operators at Oklahoma City. The new plan closes in 87½ per cent of the field's potential. For several weeks past this prolific area has been under wraps which reduced its producing possibilities 75 per cent. However, the list of large producers has grown so rapidly that an additional cut was thought necessary and the new program, which amounts almost to virtual shut down, was inaugurated.

Extending the old plan, which divided the producing wells into four groups with three days on and nine days off production, the new schedule reclassifies the wells into eight groups. The open flow time was cut to 36 hours every 12 days from Feb. 26 to April 3, inclusive.

Class "A" wells, effective Feb. 26, produce 36 hours, and so on until each of the eight classes has produced that time.

There are several factors that have influenced the decision for further proration, chief among which is pipe line restriction. Rapid drilling, water incursion and low crude price follow in about the order named. Each presents its own potent argument.

Where the early proration schedules were based largely on the desire to hold the then prevailing price, the above additional factors have made themselves so increasingly felt that the new plan seems almost essential to the pool.

Results will undoubtedly be manifold, particularly if it is continued for a considerable period. Not only will it serve to counteract the effects of local conditions but it sets a proration pace for other fields to follow.

Fewer wells would have deferred the present serious water situation and it is certainly true that rock pressures would have remained more nearly normal. As it is, 85 per cent of the "lime" wells are making water in amounts varying from three to 80 per cent of their total production, and rock pressures have shown more than an appreciable decline.

This condition is characteristic of "Siliceous lime" production, however, for it has proven to be tricky in other localities. It is known as a "flush" pay with water right behind the oil. The first wells in get the oil and it has never taken any of them long to show water. Though most of the wells at Oklahoma City have had large initials from this horizon, some of them have had their production cut in half in less than a week by water intrusion. None has had to wait long for water to come in and the immediate result is a drop in production.

There is also the matter of investment which a rapid drilling campaign necessitates. To drill one of the deep producers of this area and put it on production costs approximately $150,000. In other words, six or seven can be drilled for $1,000,000. This figure represents most of the major charges that can be made for completing the individual wells of a lease. The 119 wells that have been completed at this writing represent an investment in the neighborhood of $18,000,000 for drilling cost alone.

This great cost seems discounted when the average initial of from 6000 to 8000 barrels per well is considered. In many cases the drilling cost will assume minor proportions compared to the return. But as rapid drilling proceeds there will be plenty of others that will have difficulty in paying out.

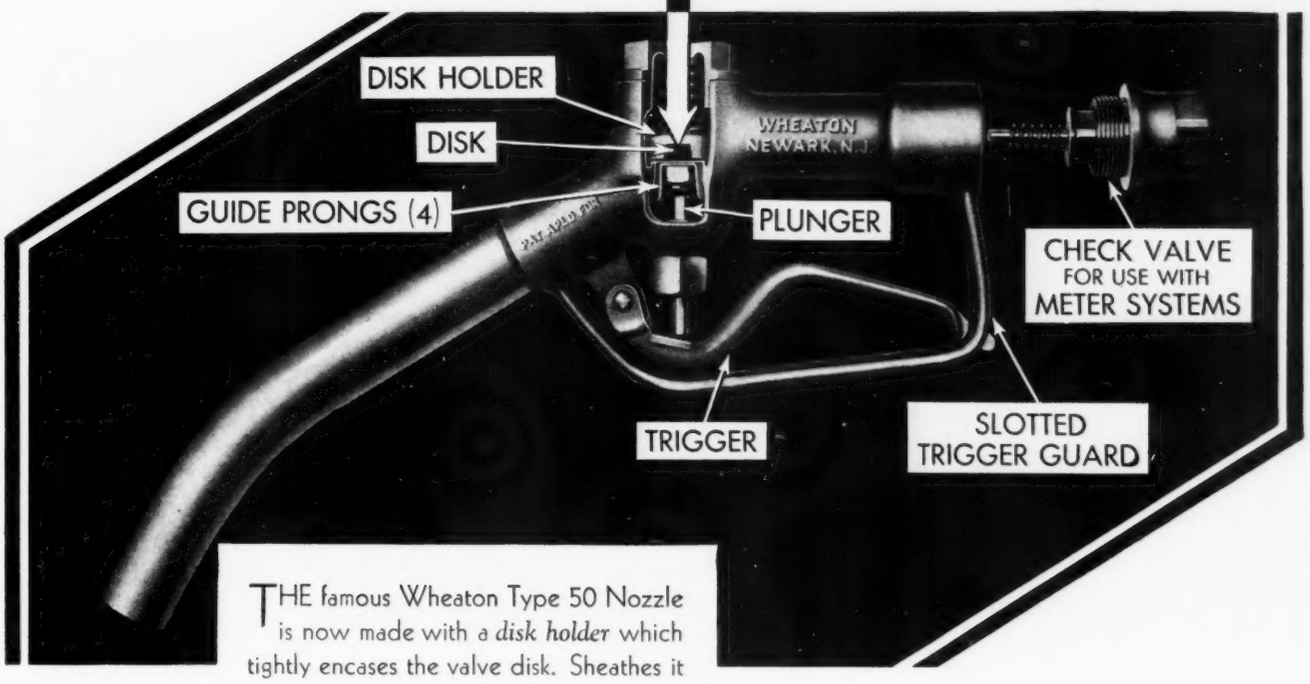
Water will be primarily responsible for it causes the quick decline which almost invariably results with continued open flow of "Siliceous lime" wells. It has not as yet effected the detrital, or sand wells, on the edge of the structure and these have a much slower decline.

In connection with the hurried drilling at Oklahoma City there is another question that is argued at length in many quarters. This is the matter of well spacing in a pool of this type. It will be noted that one well to 10 acres is the rule though there are scattered cases of even closer locations. In the heart of the pool and on the northwest this was due to small lease division but on the

Shut-In Wells to be Opened Soon in Oklahoma City Field

Company	Lease	Well No.	Opening Date	Estimated Potential
I. T. I. O.	Drake	2	March 1	7,000
C-Franklin	Trosper Pk.	11	do 2	8,100
I. T. I. O.	Canfield-Button	1	do 3	11,700
I. T. I. O.	A. Bodine	3	do 5	7,100
I. T. I. O.	A. Bodine	4	do 5	6,000
I. T. I. O.	S. Hiddleston	1	do 6	1,800
I. T. I. O.	L. Trosper	1	do 10	3,100
C-Franklin	Trosper Park	3	do 10	7,200
I. T. I. O.	Fortson-Farley	1	do 11	7,500
I. T. I. O.	L. Farley	1	do 12	26,000
W-Franklin	Lowery	4	do 13	6,700
Prairie	Hiddleston	7	do 14	5,200
I. T. I. O.	Trosper	8	do 18	4,100
I. T. I. O.	A. Brokaw	2	do 22	3,200
I. T. I. O.	Button	3	do 24	10,000
Coline	Warren	5	do 25	3,700
I. T. I. O.	Trosper	6	do 26	1,000
I. T. I. O.	A. Bodine	5	do 28	16,500
I. T. I. O.	Trosper	10	do 30	12,100
I. T. I. O.	Button	4	do 30	4,900
I. T. I. O.	Trosper	9	do 31	3,100
W-Franklin	Lowery	3	April 4	9,200
I. T. I. O.	E. Fortson	3	do 5	16,900
C-Franklin	Trosper Park	2	do 6	14,600
Coline	Olds	6	do 12	1,600
I. T. I. O.	C. Brokaw	1	do 13	28,000
I. T. I. O.	Jones	1	do 14	5,300
Prairie	Hiddleston	6	do 15	7,100
C-Franklin	Trosper Park	9	do 15	9,400
I. T. I. O.	Farley-Fuzzell	1	do 24	25,300
TOTAL				273,400

THE DISK LASTS MANY TIMES LONGER



THE famous Wheaton Type 50 Nozzle is now made with a *disk holder* which tightly encases the valve disk. Sheathes it from saturation! Protects it from disintegration! Makes it *last* many times longer!

In the cut-out view above, you will observe that the disk holder almost completely encases the disk. Notice, too, the disk seat and the groove into which the rim of the disk holder slips as the disk wears down —assuring remarkably long life of the disk and freedom from a leaking valve.

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south and west offsetting line fights are responsible.

Those who favor the drilling of all the regular locations insist that it is essential in the lime area because of the lensy nature of that pay. The contention has its good points, for some wells have found tight, comparatively unproductive streaks at depths where others have had big flows. On the other hand, opponents of close spacing hold that the lense argument is one in favor of one well to 40 acres, or at most, one well to 20 acres. The suggestion they offer is that if a good spot is not hit in the first hole then another well can be drilled, the idea being to reduce the investment.

Considering all the conditions at Oklahoma City, proponents of wider spacing seem to have the better of the argument. That the ultimate yield would be as great is still a question, though it is doubtful if the difference would be worth the expense of drilling every location. At any rate, it does not seem to be good economics to sink holes to 6400 feet to an erratic lime horizon when under the present proration they can only be produced 45 days a year.

If no more were going down, most of the present producers would pay good returns even on the new schedule, but there are 241 other wells now being drilled. More will follow and it will require a producing consistency not yet evidenced by the field to pay them all out.

The six pipe lines serving the pool have a combined capacity of 147,000 barrels per day. None of them is carrying its full load. The lines have agreed to take a total of around 80,000 barrels a day with no promises as to what they will take later on. The present daily average production is still slightly above this 80,000 barrels and it must be kept near that figure if the operators wish to ship all the oil they produce. Here is the principal brake on the producers at Oklahoma City.

The pipe line companies neither want nor need the oil and they are not making any moves to increase their capacities for future use. It might be expected that they would do this in view of rapidly growing potential yield of the field. The wells now producing are estimated as being good for more than 500,000 barrels a day and the accompanying list of wells and their opening dates indicates that this figure will be considerably increased in the next 60 days.

Of the 241 wells now being drilled, 76 are below 6000 feet and 47 are below 5000 feet. From these figures it is reasonable to conclude that an average of two wells a day will be completed for the next two months. If these wells have only the average initials they will do a great deal more than just take care of the decline of present producers. Earlier proration agreements will not allow them to produce for 65 days after completion. They become the summer crop and will keep the potential fairly high.

Potentials at Oklahoma City do not mean all that they usually imply, however, especially in the lime wells. For the most part they represent an estimated 24-hour production on the basis of a few hours gauge. Initial full 24-hour gauges are often taken but even these do not give an acceptable potential figure. Declines are too rapid and a 20 per cent discount will come closer to the real potential of the well. The result is that Oklahoma City is being greatly overestimated.

Morgan's Refugio Properties Sold to United Gas Co.

HOUSTON, March 1

UNITED GAS CO., through its subsidiary Houston Gulf Gas Co., has become the dominant factor in the Refugio field, near Corpus Christi, by purchase of the Gulf Coast Pipe Line Co., and the William F. Morgan field interests for $3,500,000.

Included in the deal are approximately 2000 acres of oil leases, 7500 barrels daily average production and a 36-mile oil pipe line connecting the Refugio field with a loading terminal at Port Aransas, in the Corpus Christi district. The pipe line is the only present outlet for crude production in the Refugio field, which has been recently fluctuating between 30,000 and 35,000 barrels daily.

Gulf Coast Pipe Line Co., which will continue to be operated by Mr. Morgan as head of a United Gas Co. subsidiary, has contracts for cargo quantities of Refugio crude at Port Aransas as follows: Cities Service Oil Co., 10,000 barrels daily; The Texas Co., 5000 barrels; and Humble Oil & Refining Co., 6000 barrels.

Tank car shipments of Refugio crude by various interests to northern interior destinations have been approximating the following daily average quantities: Shell Petroleum Corp., Roxana, Ill., 3000 barrels; Sun Oil Co., Toledo, 2000 barrels; and Henry H. Cross, Chicago, contract for 4000 barrels pending.

Crude movement to the Crown Central Petroleum Corp., operating cracking facilities and a lubricant plant on the Houston ship channel, approximates 2000 barrels daily.

The recently prevailing price of 55 cents a barrel at the well, paid producers by the Gulf Coast Pipe Line Co., has attracted interior refiners to the Refugio field as a source of tank car quantities of the 22.9 degrees A.P.I. gravity crude.

Included have been San Antonio and Laredo district plants such as the Grayburg Oil Co., and the Motor Fuel Products Co., the last mentioned a subsidiary of the United Gas Co. These companies also have been getting quantities of Refugio crude in tank cars and some other similar shipments have been moved to various plant destinations through brokers.

Analysis of Refugio crude shows approximately a 50 per cent gas oil content suitable for cracking; light lubricant distillate, about 20 per cent; and medium lubricant distillate, about 17 per cent. At the recently prevailing field price the crude has been found attractive, especially as the gas oil cracks into a natural anti-knock motor fuel.

Field operations elsewhere in Texas have been quiet throughout the week, except that development work continues steadily in the Judkins area of Ector county, West Texas, and the Van area of Van Zandt county, East Texas.

University of Texas leasing board requirements for the offsetting of oblong small tracts in the Ector area, plus the forcing of development by wells already completed by three companies, insure that the next two months will find a total of 40-odd wells drilled or drilling.

Previously announced pipe line extensions into the field will give outlet for crude through the Burford, Magnolia, Gulf, Humble and Shell systems, which are extending short laterals from their trunk facilities to connect with the field. It is certain the field will take its place this summer among important developments of the Permian salt basin producing province, as heretofore forecast in these columns.[1]

The cooperatively developed Van field of East Texas, where Pure Oil Co. owns upwards of 80 per cent of the pooled production, entered the month of March making 9600 barrels pinched exploitation from 10 wells.

Open flow potential production of the Van field exceeds 30,000 barrels daily and if the true value of completed wells could be accurately measured might exceed 50,000 barrels at present. Leasehold requirements in the area are such that at least one well will have to be drilled in the next 12 to 15 months for virtually every landowner in the prospective area, indicating for that period the putting down of more than 100 wells.

[1]NATIONAL PETROLEUM NEWS, Page 40-d, Feb. 26, 1930.

A. W. Peake, whose resignation from the presidency of the Dixie Oil Co., Standard Oil Co. of Indiana subsidiary, was recently announced, has left Tulsa for the Chicago offices of the Indiana company. There he is to assume his new duties as head of the oil producing division of the Indiana company. It is thought probable in the Mid-Continent that Mr. Peake is also soon to join the board of directors of that company.

Mr. Peake was graduated as a mining engineer from Stanford University in 1912. He started out working in the field, holding at various times practically all the jobs from roustabout to superintendent in the California oil fields.

Nineteen sixteen saw him in Wyoming as superintendent of field operations for the Midwest Refining Co. He advanced from job to job until in 1928 he was chief engineer and general superintendent as well as a director of the Midwest.

His next move was to Shreveport, where he went as vice-president of the Dixie Oil Co. Both the Dixie and the Midwest are subsidiaries of the Standard of Indiana. He was soon made president of the Dixie, which position he occupied until recently.

* * *

H. G. Schneider, formerly manager of the land and geological departments of the Dixie Oil Co., is now vice president in charge of exploration for that company. Mr. Schneider obtained his geologic training at the Colorado School of Mines from which he was graduated in 1918.

Following three years of field work with a firm of consulting geologists which took him over Rocky Mountain, Mid-Continent, Central and South American territory, he entered the geological department of the American Petroleum Corp., in 1921. He joined the Dixie Oil Co. in 1925, becoming chief geologist in 1928 and manager of the land and geological departments in 1929. Mr. Schneider succeeds F. O. Prior who was made president of the Dixie with the resignation of A. W. Peake.

* * *

Pinch-hitting again for the gentleman who regularly bats out these columns, we wish to remark on the lather into which local business has worked itself over the present tariff fight. When things are rocking along on a fairly even keel, it is a matter of pride for local business men to play down the importance of the oil industry to Tulsa business, and say that the general trade territory surrounding the city is the principal source of revenue. But when a cut in crude prices comes along it's oil that makes the wheels go round, and they don't mean maybe.

* * *

The Comar Oil Co. has set what is believed to be a world's safety record, according to C. M. Copeland, superintendent. Employes of this company have worked 1,000,000 man-hours without a lost time accident. The last such accident occurred Nov. 23, 1928. The company works an average of 200 men. No less remarkable than the record itself is the sudden improvement in accident prevention which is revealed. In 1927 there had been 45 lost time accidents among the Comar workmen. Up to Nov. 23 the year 1927 had witnessed 17 lost time accidents. The improvement is attributed by Mr. Copeland to the better education of the workmen along safety lines, and to arousing their interest in keeping themselves and their coworkers safe at all times.

H. G. Schneider

The purchase by the Independent Oil & Gas Co. of the Vickers Petroleum Co. pipe line out of the Schurr pool of Rice county, Kansas, has been announced. The line extends from the pool to a loading rack at Raymond.

* * *

Married: Miss Kathryn McLaughlin, Tulsa, and Warren L. Baker, Tulsa correspondent for the Oil Weekly.

* * *

Add typographical errors. On the front page of the Wichita Eagle is an A. P. story telling of the final acceptance of the death of "King" Purnell, leader of the House of David, whose physical passing three years ago was regarded by his followers as merely temporary. "With his demise an accepted fact," quotes the Eagle, "the lure of immorality has been effaced from the teachings of the colony."

* * *

Dr. George C. Branner, state geologist of Arkansas, has been elected secretary of the State Geologists Association.

* * *

Offices of the Denver Producing and Refining Co., R. C. Rapp, vice president and general manager, are to be temporarily removed from Okmulgee to Shreveport. The company has a lease to develop in the Zwolle area which will require the closer contact the move will permit.

* * *

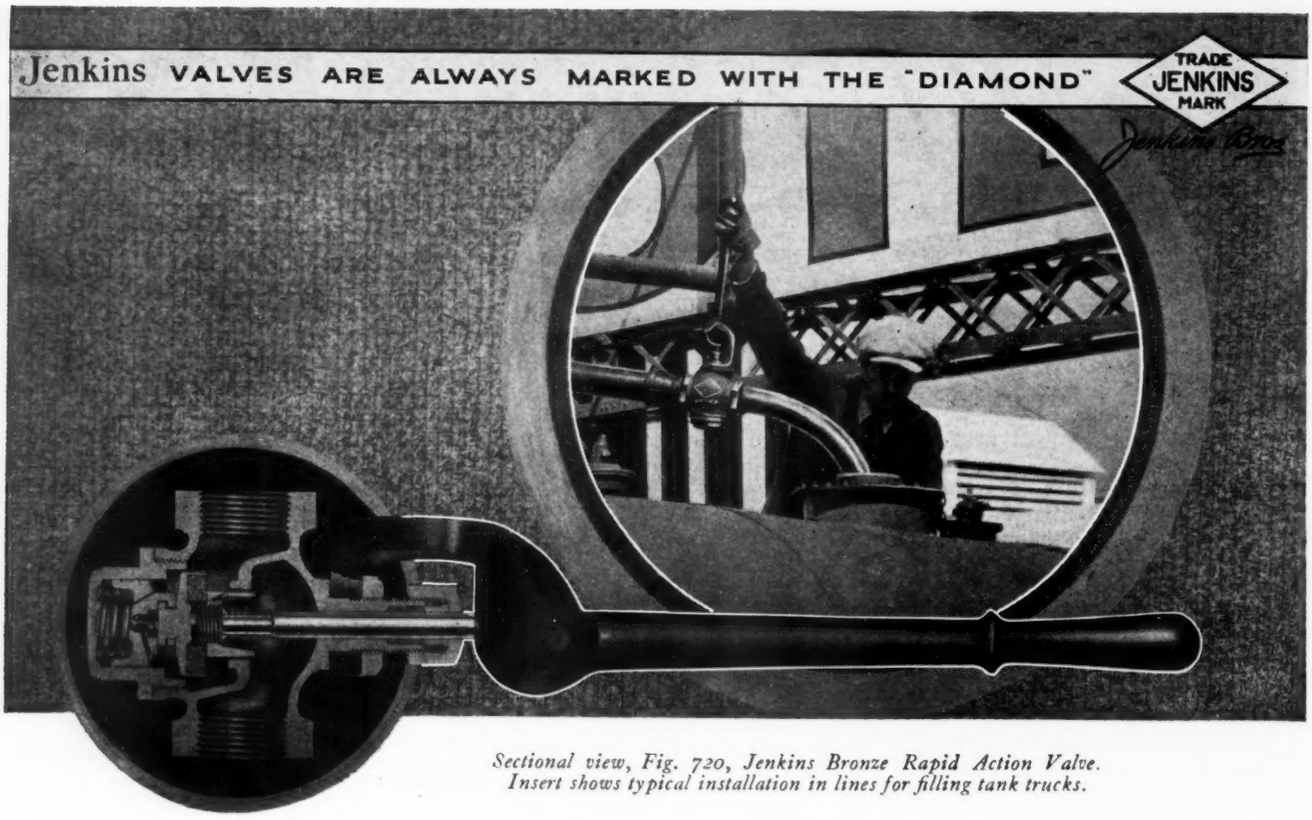
The Drumright chapter of the American Petroleum Institute, Division of Production, continues to get its organization as closely knit as possible. Membership cards are now being issued to those paying their yearly dues of $1.00.

* * *

S. S. Owen, whose completion in Mitchell county, Texas, was one of the first producers in West Texas, is making a visit to the Pennsylvania fields enroute to Washington on behalf of an oil tariff.

* * *

R. H. Smith, Tulsa oil operator, has moved his offices to the seventeenth floor of the Philtower Bldg., in order that all his oil interests may be closer together. They include the Marquette Oil Co., and the McCulloch Oil Co.



Sectional view, Fig. 720, Jenkins Bronze Rapid Action Valve. Insert shows typical installation in lines for filling tank trucks.

Speed up tank filling

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This Jenkins is a business like valve. As its name implies, it is always ready for quick use. A renewable disc of oil resisting composition, with which this valve is fitted when ordered for petroleum services, provides leak-proof contact at the valve seat.

Folder 70a contains further details on Jenkins Rapid Action Valves. Gladly sent on request.

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Three New Wells at Oklahoma City; Konawa Pool Is Extended

TULSA, March 1

THE Mid-Continent fields generally offered little that was startling in the way of development news during the week. At Oklahoma City three wells, with a combined potential initial production of some 43,000 barrels per day were completed, but not being extensions of proven territory, can not be classed as unusually important. The rest of the state was featured by a half mile southwest extension of the Konawa pool, south of Little River, Seminole county.

In the Panhandle of north Texas the feature event of the week was the completion of two more good wells in the Finley pool, Gray county. They extend production a location or so, being regarded as proof of continuity, rather than of really new territory. A new proration meeting has been called to consider plans for further restricting development activities in this area.

Nor was Kansas very active, either. Vertical correction in one of the rotary holes drilled on the west flank of the Voshell pool made this part of the field look better than it did last week, when drill pipe measurement of some of the market formations made them run unusually low.

Oklahoma City was forced into another drastic proration program this week by the rising tide of production. Wells have been coming in so fast and so big of late that it became necessary to boost the shut-in production from 75 to 87½ per cent of the potential. The pipe line situation caused the cut. The companies operating these lines have agreed to take but a portion of their capacity of 142,000 barrels, and the producing companies are now attempting to keep production near the acceptable amount of 80,000 barrels. Elsewhere in this issue the details of the new plan are given in full.

The most interesting completion of the week, if not the largest, is the No. 2 Jones of the Indian Territory Illuminating Oil Co., in the NE NW of 31-11-2W. Bottomed in sand or detritus at 6413, the well flowed 4205 barrels of 38.6 gravity oil in 12 hours under a 300-pound back pressure. This well is the west offset to the Skelly Oil Co.'s No. 1 Hoopes, which gauged 28,000 barrels initially.

The I. T. I. O.-Foster combined interests completed two more good wells having a combined potential of 30,000 barrels. The largest of these was the No. 3 Wheeler, NE NW SE of 13-11-3W, which flowed at the rate of 17,000 barrels for a period of three hours, though it was cutting about 6 per cent water. The other, No. 2 Canfield-Button NE NE SW of 19-11-2W, is estimated as being good for 14,000 barrels with 30 million cubic feet of gas. The completion of these wells puts the total number of producers at Oklahoma City at 120.

One of the most interesting wells geologically in this area is the I. T. I. O.-Foster No. 1 Pearl Trosper in the NW corner of 18-11-2W. This well recently indicated a further extension to the north of the fault which was noted some time ago in the SW corner of 19-11-2. The log shows 200 feet of Arbuckle lime before going back up the section and entering Simpson. After drilling 100 feet of the latter the well was bailed and did not produce. It is now being deepened.

This fault can now be traced for more than two miles along the east side of the pool in almost a straight line. That it will cut a part of the east side of Trosper Park in 12-11-3W seems very probable.

In the Texas Panhandle another producers meeting is to be called this week by H. M. Stalcup, vice president of the Skelly Oil Co., chairman of the committee. The proration plan that has been in force for the past two months terminates March 6 and a new plan is to be formulated. This time, however, the operators are to work toward restricted drilling rather than curtailing production.

Two wells were completed in the Combs-Worley-Wright area of sections 36 and 13 of Block 3 I & GN Survey, Gray county. This territory is developing into a north extension to the Finley pool. The result of their initial production is reflected in the 800-barrel increase in this county's daily average production over the previous week.

DEVELOPMENTS made the week one of mixed emotions for the Konawa pool. The producing area was extended a half mile to the southwest by the completion of a good well; the northwestern edge of the pool was apparently defined by the failure of two other wells.

The new producer was the Sinclair Oil & Gas Co. No. 1 Johnson, in the NE SE NW of 17-6-6, half a mile southwest of production. It made 595 barrels flowing by heads the first 16 hours. Production is coming from the Cromwell sand, from which the Konawa pool produces. Sand was topped at 2875-80.

Gypsy Oil Co. drilled in another producer for the pool in its No. 1 Wren, NW NE NE of 17-6-6, a quarter mile northeast of the Sinclair's well. The Gypsy's producer flowed by heads also, making 275 barrels in the first 12 hours, from the sand at 2893-99.

The two apparent failures on the northwest edge of the pool were both drilled by the interests that discovered the pool, Harris et al. The wells, the Nos. 5 and 6, Harjoche, in the SE quarter of 8-6-6, both apparently have missed the sand, and are drilling in shale below 3000 feet. Definite decision as to abandoning or carrying the wells on down to the Wilcox has not been announced.

THE Konawa pool is now making some 5590 barrels per day average production from 13 wells, being the average daily production for the past week. This compares with 3175 barrels from 11 wells the week before. For the week prior to that the field had averaged 2315 barrels from seven wells.

Most of the development work being carried on in the Seminole area centers in and around the fringe pools that lie on the outskirts of the original Seminole fields. Although the East Earlsboro pool has been definitely established as to areal extent and potential daily production (90,000 barrels), the South Earlsboro pool is coming along to take its place.

Several wells have got under way in the past week in this new pool, and there are quite a few location stakes being driven. The performance of the discovery wells has been sufficiently encouraging to make operators believe that there is a possibility there for another such pool as East Earlsboro.

Possibilities for the extension of the East Little pool, which contains both Wilcox and Cromwell or Gilcrease sand production now appear to lie to the southwest only. Principal activity in this pool during the week was work on the Sinclair Pipe Line Co.'s 6-inch line which is being laid from the Little River station to the Konawa field.

Two wells were completed in the East Little River pool during the week, or almost completed. The Mid-Continent Petroleum Corp. drilled its No. 3 Yarhola, NE SW NW of 8-7-7 for 230 barrels from the Cromwell sand. Water at 3268 caused the well

to be plugged back to 3262. The production is cutting 3 per cent.

Magnolia Petroleum Co. has its No. 3 Brame showing for a well at a total depth of 3195. It is in the SW NE NE of 8-7-7.

Another well on the outskirts of the St. Louis pool, Pottawatomie county, was drilled in as a Hunton Lime producer, but after making 360 barrels in seven hours had to be shut in for lack of pipe line connections. The Hunton in this part of general Seminole area, 24-7-4 continues to provide such wells at almost regular intervals.

Reports as to the depth at which the wells drilling along the center of section 9-21C-3W in the Voshell pool in Kansas picked up the chat on top of the Mississippi lime put the formation about 100 feet lower than it had been encountered in the producing wells of the field.

Vertical corrections made after pipe had been set accounted for 70 feet of this difference, however, and brightened considerably the chances for the west side of the pool.

One new well was added to the total during the week. It was the Empire Oil & Refining Co. No. 1, in the center of the NE SE SE of 9-21-3W. It swabbed 1007 barrels in 15 hours from the Wilcox at 3308-15.

On Feb. 25 the operators agreed to continue through March the 66 2/3 per cent proration of the East Earlsboro pool. The agreement limiting the pool's output to this extent has been in effect a little more than a month.

On the Western Front

By Jack N. Westsmith
Los Angeles

IRVING V. AUGUR, president of the Bolsa Chica Oil Corp., died recently after an illness of more than two years duration.

Since his graduation from the University of California in 1913 where he studied petroleum engineering, Mr. Augur has been identified with the California oil industry in one of various capacities. As deputy state oil and gas supervisor he was in charge of all the district offices except Santa Maria, at one time or another.

In 1920 he helped to organize the Bolsa Chica company and held the position of treasurer. Later he became vice president and in 1926 when the company was reorganized he became president.

* * *

W. H. "Bill" Laury, formerly head of the research department for the Axleson Machine Co., and very active in matters dealing with the heat treatment of steel, is now associated with Universal Rod and Equipment Co., subsidiary of Bethlehem Steel Co.

* * *

R. E. Collom, general manager of Continental Oil Co., in California, although not entirely recovered from an illness that kept him away from his desk for several months has recuperated sufficiently to enable him to be at his office occasionally and to attend meetings pertaining to conservation of production in California flush fields.

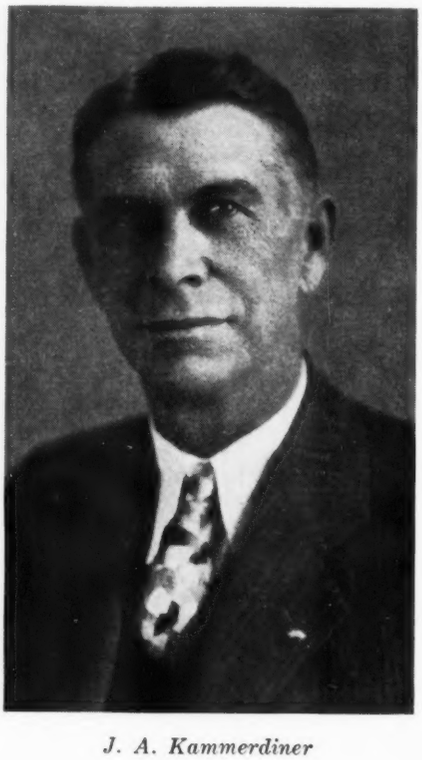
Continental, which is one of the large permit holders in the Kettleman Hills is vitally interested in any plan for future control of this area and Mr. Collom as one of the members of the Kettleman Hills conservation committee is greatly needed in order to obtain 100 per cent cooperation among operators.

* * *

J. A. Kammerdiner, who entered into the oil industry in the early days and has since been employed in the drilling and producing end of the business has gone into business for himself to manufacture the Kammerdiner Rotary Jar. He was formerly superintendent for the Union Oil Co. and has made a specialty of fishing operations.

* * *

Due to the increased interest among California operators toward geophysics, George Steiner, consulting geophysicist with headquarters at Houston has opened an office in Los Angeles with H. W. Rose in charge.



J. A. Kammerdiner

John G. Kinsey, president of Mills Iron Works, Inc., Los Angeles, is making a trip to the Texas oil fields where he will spend considerable time in the interest of his business.

* * *

L. C. Decius has been appointed manager of the Land Department of the Associated Oil Co. and will have charge of all geological and land activities. Mr. Decius who is a graduate of Stanford University and well known among California geologists leaves the position of chief geologist to assume his new duties.

* * *

G. V. Leece, manager of oilfield sales for the Gardner-Denver Co. spent several days in Los Angeles to visit the company's local office as a part of an extended visit covering the Mid-Continent and Texas fields.

* * *

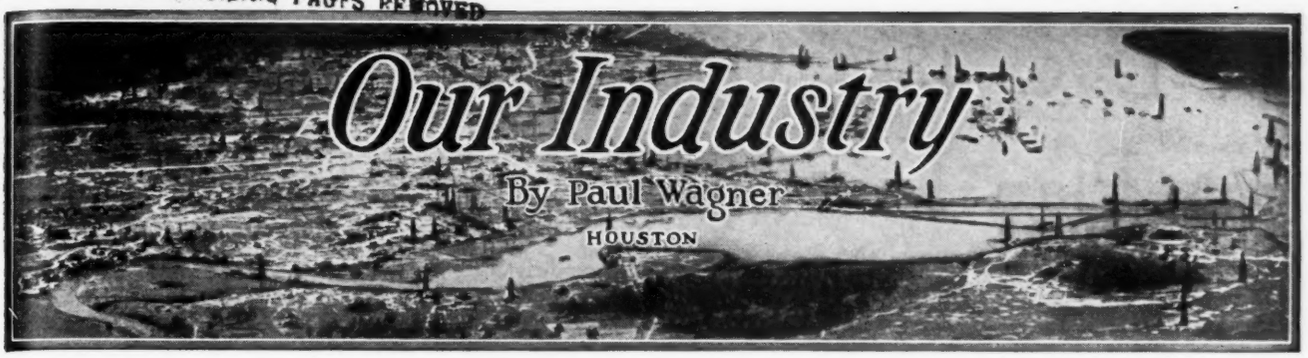
Theodore M. Martin has been appointed manager of the advertising department for Byron Jackson Co.

* * *

S. H. Ash, district engineer of the U. S. Bureau of Mines, with headquarters at Berkeley, will be in charge of the Bureau's safety exhibit at the Oil Equipment and Engineering Exposition, Los Angeles, March 16-23. He will be assisted by Emory Smith, foreman of the Bureau's rescue motor truck. Demonstrations will be given of safety work in various departments of the oil industry.

Engineers of the production division of the California office of the Bureau will also play an active part at the Los Angeles oil show. Under the supervision of C. P. Bowie, supervising engineer, they will direct the completion of an exhibit now being prepared at the Bartlesville station.

ADVERTISING PAGES REMOVED



A SURVEY of the state's industries and potentialities, prepared by G. M. Knebel of San Antonio and issued through the Texas State Manufacturers Association, classifies petroleum as a great factor in the prosperity of the commonwealth.

"Texas owes much of its prosperity," says the survey, "to the petroleum industry, the state leading the nation in the production of crude and the refining of crude oil.

"The development of oil and gas resources has taken place largely during the last 10 years, bringing as a concomitant industry the making of carbon black.

"Petroleum is the leading industry in the state and is a great factor in its trade and commerce. The petroleum and allied industries have proved to be the great balancing wheel between agriculture and the manufacturing and mining industries."

* * *

After 18 years in the service of the Shell Oil Co. (California), G. H. Van Senden has been placed in charge of manufacturing, carrying the title of vice president of the Pacific Coast subsidiary of the Shell Union Oil Corp.

* * *

Richard L. Triplett is now in the geological department of the Western Gulf Oil Co., at Los Angeles, having been transferred from the Gypsy Oil Co., Mid-Continent subsidiary of the Gulf Oil Corp., at Tulsa.

* * *

Thomas F. Newman, formerly at San Angelo, has taken up his new activities as district geologist at Amarillo of the Skelly Oil Co.

* * *

Born: To Mr. and Mrs. M. G. Gulley, a son, their second child. Mr. Gulley, of the geological department of the Eastern Gulf Oil Co., at Pittsburgh, is assistant to K. C. Heald, chief geologist of the Eastern Gulf and staff geologist of the parent Gulf Oil Corp.

* * *

Frank P. Donohue, chief petroleum engineer of the Southern Crude Oil Purchasing Co., subsidiary of Pan American Petroleum & Transport Co., is now making headquarters at Fort Worth. He has been stationed at Wink, in west Texas, since transfer from the Lago Petroleum Corp., at Maracaibo, last fall. F. M. Davis succeeded him at Wink.

* * *

E. V. Woolsey, formerly south Texas geologist of the Atlantic Oil Producing Co., who resigned at the beginning of the year, is operating independently with headquarters at Luling, Caldwell county.

* * *

E. F. Goggins of the pump division of the Byron Jackson Co., San Francisco, has recently established sales offices in the Post-Dispatch building at Houston. He was formerly located at Tulsa and prior to that in Dallas territory.

* * *

H. L. Brown, widely known independent operator of Fort Worth, was identified with the land department of the old Marland Oil Co. of Texas before resigning to go in business for himself several years ago. Although best known as a land and lease man, Mr. Brown and his associates own some production.

H. L. Brown

* * *

Edmond H. Watts, formerly of the New York technical division of The Texas Co., has been transferred to Los Angeles, where he is engaged in similar work for The Texas Co. of California, a subsidiary corporation.

* * *

M. F. Ecklund, formerly head of The Texas Co.'s crude oil purchasing department at Pryse, Ky., has taken up new duties in the New York office.

* * *

The recent election of G. P. Whaley to be chairman of the board of directors of the Vacuum Oil Co., New York, was followed by the naming of Herbert Baker as vice chairman. Mr. Baker was formerly president, in which position he was succeeded by Charles E. Arnott. Mr. Baker retains the position of treasurer, which he formerly held.

Vice presidents re-elected include Charles E. Bedford and Walter M. McGee. New directors are C. L. Jones, lubricating sales department; J. J. McGuire, refined oil department; and H. F. Sheets, European sales department. George V. Holton was re-elected secretary.

* * *

L. W. Powell is now in charge of Winkler county operations of the Southern Crude Oil Purchasing Co., subsidiary in West Texas of the Pan American Petroleum & Transport Co., carrying the title of field superintendent. He works with A. B. Irion, general superintendent, formerly of Wink but now located at Fort Worth headquarters offices.

* * *

E. E. Boylan is now general manager of the Caracas Petroleum Corp., in Venezuela, making headquarters at Caracas. He formerly was, for 10 years, connected with the South American Gulf Oil Co.

* * *

R. E. Dickerson, chief geologist of the Venezuelan Atlantic Refining Co., an exploratory arm of the parent company at Philadelphia, has been named district representative for South America of the American Association of Petroleum Geologists. His term lasts through 1930 and 1931.

90-Day, 43% Voluntary Curtailment Plan Launched in California

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, Feb. 28

AFTER nearly a month of extensive study into the production problems of the oil fields on the Pacific Coast, the General Council of Fifteen operators has set March 1 as the date the new voluntary measures become effective.

The new agreement for statewide proration will prevail for 90 days provided it is found necessary, in order to keep California production at the desired figure of 609,000 barrels daily. Results of recent flow tests at the flush fields indicated, in some instances, that the state's daily output would approximate the above figure of its own volition within two months.

Because of the unwillingness of a group of independent operators in the Santa Fe Springs field to agree to the new move, the remaining producers will have to reduce their production approximately 1000 barrels per day below the 43 per cent reduction called for.

Operators in the Midway-Sunset field have also failed to come in on the proposed proration agreement, although it is expected this field, where an additional curtailment of 10,000 barrels is necessary to complete the total reduction in the state's output, will cause little trouble, as a majority of the production is held in the hands of large companies.

In the opinion of some conservationists the daily average production of crude oil in California is not likely to be actually reduced below 630,000 or even 650,000 barrels during the coming three months of proposed curtailment. By setting the allowable daily output at 609,000 barrels it is the hope of leaders in the industry that more than a theoretical reduction will be effected, however.

In order to facilitate handling the statewide curtailment movement Umpire Paul Grimm has been appointed as umpire over seven more fields, bringing ten all told under his jurisdiction. Three of the new fields are in group 2, or the settled division of the state's oil fields, and have the following potentials and proposed cuts in production:

Field	Potential B/D Bbls.	Proposed cut %	Allowable B/D Bbls.
Inglewood	23,245	20	18,596
Montebello	8,700	23	6,700
Lost Hills	8,630	76	2,090

Umpire Grimm will also have charge of Kern Front, Mt. Poso, Round Mountain, and Maricopa Flats, which are all in Group 1 or the flush field division. The total estimated potential production of these fields, together with his three orig-

California Curtailment Schedule for March, April, May

	Estimated Potential Bbls. Daily	Present Production Bbls. Daily	Present Barrels Daily	Curtailment %	Proposed Barrels Daily	Curtailment %	Current Allowable Bbls. Daily
GROUP ONE:							
Santa Fe Springs	262,284	165,000	97,284	37.08	112,782	43.00	149,502
Long Beach	156,880	105,000	51,880	33.09	67,458	43.00	89,422
Ventura Avenue	74,170	50,000	24,170	32.60	31,893	43.00	42,277
Elwood	64,579	33,000	31,579	48.90	27,769	43.00	36,810
Seal Beach-Alamitos	41,053	37,000	4,053	9.87	17,653	43.00	23,400
Kern Front	22,600	20,100	2,500	11.06	9,718	43.00	12,882
Mt. Poso	17,600	14,750	2,850	16.18	7,568	43.00	10,032
Round Mountain	5,800	3,550	2,250	61.22	2,494	43.00	3,306
Maricopa Flat	20,000	20,000	.....	.....	8,600	43.00	11,400
GROUP ONE TOTAL	664,966	448,400	216,566	32.56	285,935	43.00	379,031
GROUP TWO:							
Fullerton-Brea	22,450	13,750	8,700	38.75	8,980	40.00	13,470
Whittier	1,475	1,475	.....	.....	.....	.....	1,475
Montebello	8,700	8,700	.....	.....	2,000	23.00	6,700
Coyote	13,545	11,500	2,045	15.10	3,045	22.45	10,500
Richfield	14,600	14,600	.....	.....	5,800	40.00	8,800
Huntington Beach	41,250	41,250	.....	.....	16,000	38.82	25,250
Torrance	12,600	12,600	.....	.....	.....	.....	12,600
Dominguez	15,800	10,700	5,100	20.48	6,320	40.00	9,480
Rosecrans	6,500	6,500	.....	.....	.....	.....	6,500
Inglewood	23,500	22,100	1,400	59.60	4,700	20.00	18,800
Potrero	900	900	.....	.....	.....	.....	900
Lawndale	700	700	.....	.....	.....	.....	700
L. A.—Salt Lake	1,600	1,600	.....	.....	.....	.....	1,600
Newport	30	30	.....	.....	.....	.....	30
Playa del Rey	1,900	.....	1,900	100.00	1,900	100.00	.....
Kern River	11,840	2,500	9,340	78.89	9,340	78.89	2,500
Fruitvale	5,500	3,100	2,400	43.60	2,400	43.60	3,100
McKittrick	4,800	4,800	.....	.....	960	20.00	3,840
Lost Hills-Belridge	8,630	5,375	3,255	37.73	6,540	75.80	2,090
Midway-Sunset	85,340	61,500	23,840	27.95	34,136	40.00	51,204
Elk Hills	29,320	16,600	12,720	43.38	12,720	43.38	16,600
Wheeler Ridge	620	620	.....	.....	.....	.....	620
Coalinga	33,190	9,300	23,890	71.98	23,890	71.98	9,300
Santa Maria	10,195	2,850	7,345	72.10	9,145	89.75	1,050
Rincon	3,650	3,650	.....	.....	.....	.....	3,650
Ventura-Newhall	5,770	5,050	720	12.48	720	12.45	5,050
Capitan	400	85	315	78.80	315	78.80	85
Summerland	450	450	.....	.....	.....	.....	450
Santa Barbara	100	55	45	45.00	45	45.00	55
Watsonville	65	65	.....	.....	.....	.....	65
GROUP TWO TOTAL	365,420	262,405	103,015	28.10	148,956	40.76	216,464
GROUP THREE:							
Kettleman Hills	65,000	13,500	51,500	79.23	51,500	79.23	13,500
GRAND TOTAL	1,095,386	724,305	371.0	33.88	486,391	44.40	608,995

inal fields of Santa Fe Springs, Ventura Avenue, and Elwood, is 467,033 barrels daily.

After March 1 these fields, with a cut of 43 per cent, will have an allowable production of 266,231 barrels.

Neil Anderson, umpire of the Signal Hill field, has been appointed to handle the curtailment proceedings at Seal Beach, Richfield, Huntington Beach and Domenguez, of which Seal Beach is the only flush field.

At the annual meeting of stockholders, of the Union Oil Co. Feb. 25, officials predicted a more prosperous condition in the oil industry within the near future.

L. P. St. Clair stated that he considered that the California operators had finally realized that production must be reduced to the requirements of the industry to ensure prosperity.

He also pointed out that, although the refineries on the Pacific Coast had produced 38 per cent more gasoline during 1929 than in 1928, gasoline sales had increased only 16 per cent.

Paul N. Boggs, vice president in charge of production and chairman of the operators General Committee of Fifteen, praised the cooperation of the independent operator who had made possible the present curtailment program.

Various complications that were apparent among the major companies during the early stages of the curtailment movement now in progress have gradually been ironed out. Officials of these major companies are confident that they can control the situation now, said Mr. Boggs.

The Wilshire Oil Group, with a total estimated potential of 21,008 barrels per day and the Mohawk Petroleum Co., with a total potential of 1434 barrels per day were the only two producing units in Santa Fe Springs that did not enter into the agreement. Wilshire interests have refused all along to take part in the agreements on the plea that they need their oil for their refinery runs and Mohawk questioned the equity of the program as outlined by the fact finding committee.

There is considerable doubt in the minds of petroleum engineers that the shallow zones would produce their potentials even if opened wide, as approximately 100 wells have lost circulation in these sands while water strings were being set preparatory to drilling to the O'Connell or Clarke sands.

One major company found that a shut in Meyer zone well, bottomed at between 4500 and 5000 feet, showed an increase in the fluid level during a cement job on an adjoining well being drilled to the Clarke and that, when the pressure was relieved to test for a water shut off in this drilling well, the mud flowed back through the sands into the newly cemented water string.

If actual production tests were to be made on these shallow wells, which have been shut in during the active exploitation of the O'Connell and Clarke sands, it is expected that swabbing operations would have to be continued for considerable length of time to remove the excess mud.

Actual production by zones at Santa Fe Springs for Feb. 26 was as follows:

Zone	Production Barrels	Number Wells	Average Per Well
Nordstrom	5,920	10	592
Buckbee	7,941	14	567
O'Connell	43,749	72	608
Clarke	102,715	162	634
	160,325	258	625

Although the only curtailment of production at "the Springs" since the deep sand wells were opened up to establish the potentials has been maintained by a few of the larger independents and the major companies, the field is making only a few thousand barrels in excess of the figure of 160,000 barrels maintained during the former proration period Nov. 1 to Feb. 1.

General Petroleum Corp. which established a potential of 64,217 barrels during the flow tests and which produced approximately 29,000 barrels prior to the tests is now reported to have a daily output of 38,000 barrels. Union Oil Co., the second largest producer in this field, is reported to be producing about 27,000 barrels, as compared with a potential of 52,430 barrels and a production of 19,600 barrels daily during the period before the flow tests.

Many wells with the Clarke zones as an objective have been stopped in the upper formations due to the short life of wells located even on the top of the structure of this deepest zone. Increased pressure in the oil sands on the structural crest, produced by encroaching edge waters may prolong the life of the Clarke sand for some time, but high gas pressure and the failure of deep tests to prove up below the 8500-foot level, have set a limit to the ultimate life of the field that is considerably shorter than was anticipated during the early days of the present deep zone drilling campaign.

George F. Getty Inc. and the General Petroleum Corp. have both stopped five wells in the sands overlying the Clarke and Standard Oil Co. and Union Oil Co. are reported to be contemplating tests in the Meyer sand, found between 4500 and 5000 feet on the axis of the structure.

Richfield Oil Co. and The Texas Co. have not altogether given up hope of finding deeper production, as the former's Mayberry 1 is down to 8485 feet and the latter's Patterson 10A, which developed a lengthy fishing job several weeks ago, is now coring ahead below 8800 feet.

The tidelands offshore from the Elwood field and southeast of this field are due for a number of deep tests within the coming months as the result of preparations being made by a number of operators to spud-in.

Signal Oil and Gas Co. is constructing a pier on its Appleford permit No. 98, consisting of approximately 28 acres adjoining the Caroline Spaulding permit, where Pacific Western Oil Co. obtained a successful completion several months ago. Signal's first test will be drilled at the end of a 1400-foot pier in order to strike the projection of the Elwood structure that is thought to extend out into the ocean from the original field discovered by Rio Grande-Barnsdall interests in 1928.

The Bolsa Chica Oil Corp. is also preparing to test a theory that the structure discovered several months ago by General Petroleum Corp. in its Erburu well, extends out into the ocean. Bolsa Chica owns approximately 155 acres 3 miles southeast of the mainland portion of the Elwood field.

Anyone Know Frederick Sumner Greives?

CLEVELAND—A plea comes from the brother-in-law of Frederick Sumner Greives, enlisting the help of this publication in locating him. Mr. Greives left his home in Pittsburgh in July, 1908 to work in the California oil fields, near Bakersfield. He was last heard from in December, 1911, when his letters suddenly ceased coming. At that time, he was working in the Maricopa oil field.

His mother died recently and it is this information that relatives would like to bring to his attention.

If Mr. Greives is dead, the members of his family would appreciate details of his death and burial.

Mr. Greives is about 50 years of age and was familiarly known as "Slim."

Anyone having any information, please get in touch with NATIONAL PETROLEUM NEWS, or write direct to the brother-in-law, Mr. James Frederick Gray, 409 Lloyd St., Homewood Station, Pittsburgh, Pa.

Plant for Recovering Oil From Tank Bottoms Is Operating in Kansas

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA

DEVELOPMENT of a method for recovering the contained oil in the tank bottoms on tank farms and at pipe line pumping stations has advanced to the point where it is in actual and satisfactory operation on properties of the Gulf Pipe Line Co. in the Mid-Continent. It was worked out by J. N. Hunter, of the Gulf company, Tulsa offices. Patent has been applied for.

The scope of application of a satisfactory method of handling tank bottoms is large. The writer has been informed by one important company that it had at the first of the year approximately a half million barrels of such seemingly worthless residue. This was scattered in about 200 tanks over the states of Oklahoma and Kansas. It represented in part oil that had been paid for over and above the normal deduction made by the pipe line company for water and b. s. and, frequently of greater importance, occupied storage space that was needed.

Considerable progress has been made in recent years in treating cut oil and tank bottoms on producing leases. Entirely different problems are presented by the tank bottoms in pipe line and tank farm storage. On the producing leases the usual cut oil may run from three to 20 per cent of emulsion. The greater amount will fall between three and 10 per cent. The object is to reduce it to less than 2 per cent so that it can be run in the pipe lines.

An example of fairly common application would be that of an oil fresh from the well which contained 10 per cent of emulsion and must be reduced to around 2 per cent. This 10 per cent emulsion is freely suspended in 90 per cent of good oil. The whole mass is of low viscosity, moves freely and is probably of high gravity.

To make the oil acceptable to the pipe lines only 80 per cent of the contained emulsion must be broken up or removed. Some emulsion globules break readily while others are difficult or impossible. Heat alone, or a small amount of heat and a small amount of chemical, will break up the less stable globules. Others will not be affected.

It is usual, therefore, for the pipe line to receive into its tanks, after the oil has been treated on the leases, that portion of the original emulsion which best resists treating methods. As the oil is stored, or moves toward its destination, a considerable portion of the contained emulsion settles out and accumulates in storage and working tanks. Such accumulation is entirely different from the fresh crude emulsions found on leases. Ten to 30 per cent of oil may be washed from these tank bottom settlings by using gasoline as a solvent. They may test from 30 to 50 per cent of water by distillation.

The long period of settling or the persistent washing by fresh crude has reduced the emulsion to a thick, viscous and frequently a semi-solid mass. All of the solid matter contained in the original emulsion, with such solids as come to the pipe lines suspended in the oil, settle into and become a part of the tank bottom accumulation. They are, therefore, high in solids.

Thus, to recover dry oil from this mass, requires entirely different apparatus and methods than are employed to reduce the percentage of emulsion in fresh crude oil. In the latter case the attempt is to reduce the emulsion to the percentage that is acceptable to the pipe lines. The small amount that is left keeps on building up in the pipe line storage until it becomes a heavy burden on the facilities.

The problem of moving the bottoms from the tank to the treating plant is a difficult one, involving considerable expense. To produce an oil from this mass, practically all of the contained emulsion must be dehydrated.

MR. HUNTER set up the following specifications for an ideal system, in planning the one shown in perspective drawing in this article:

It must be capable of recovering 100 per cent of the contained oil.

It should be capable of recovering the oil from any tank bottom accumulation regardless of water content, per cent of solid matter, age, source or manner of formation.

The investment in plant should not be large in proportion to capacity.

There should be no residue left to store or otherwise dispose of.

The plant should be easily dismantled and reset in another location.

Salvage value should be high.

Its operation should pay a fair return on the investment after paying all operating expenses, including repairs and replacements.

These specifications have been partly met by the system in use and undoubtedly is capable of greater development, as more experience is gained.

It has long been known through tests such as the A. S. T. M. method of determining water in heavy oil or tar that all of the water could be removed from an emulsion by distillation. The equipment used in the Gulf, or Hunter, method, referring again to the drawing, by numbers appearing on the drawing is as follows:

1—The still, shown as a locomotive type boiler, as this form has been found adaptable.

2—Vapor line leading from the dome of the still to the evaporator.

3—The evaporator, made of six or 8-inch pipe, about 40 feet long and slightly elevated at the end farthest removed from the still. In this pipe the diluted emulsion comes in contact with hot vapors from the still and the water is evaporated.

4—A vapor line leading from the evaporator to the condenser for carrying water and light oil vapors.

5—A condenser of the usual type for condensing the evolved vapors.

6—A line leading from the condenser to the water separator for conveying the mixture of water and light oil to the separator.

7—The conventional water separator in which the water settles to and overflows from the bottom while the light oil overflows from the top.

8—The siphon or water overflow pipe from the separator.

9—The oil overflow line, carrying light oil from the separator to storage.

10—The light oil storage tank providing a supply for diluting the raw emulsion.

11—The overflow pipe from the light oil storage through which the surplus light oil passes to permanent storage.

12—A supply tank holding a supply of raw emulsion to be dehydrated.

13—A line carrying emulsion from the supply tank to the charging pump.

14—A conventional steam pump for charging the mixture of emulsion and light oils to the evaporator.

15—A line connecting the charging pump with the inside pass of the heat exchanger.

16—The heat exchanger in which the hot dry oil leaving the still gives up a portion of its heat to the mixture being charged.

17—A line for conveying the hot mixture from the heat exchanger to the evaporator.

18—A perforated pipe from which the hot mixture of emulsion and light oil is sprayed into the hot vapors in the evaporator.

19—A settling tank, or trap, to collect any unusually heavy solids before the dry oil passes to the still.

20—A pipe connecting the evaporator with the settling tank or trap.

21—A pipe leading from the settling tank to the still.

22—An overflow pipe for the continuous and automatic discharge of dry oil from the still.

23—A pipe for conveying the dry, cool oil from the plant to permanent storage.

24—A line for carrying light oil distillate from the light oil storage tank to the charging pump.

25—A regulating valve and sight feed for controlling the amount of light oil distillate being mixed with the raw emulsion.

In operation the still is filled to a proper level with a dry crude oil (free of water) or other suitable oil containing about 25 per cent of material boiling below 350 F.

Heat is applied to the still until the temperature in the vapors leaving the still is about 350 F. By the time this temperature is reached considerable distillate will have collected in the distillate storage tank (10). Pump (14) is then started drawing emulsion through pipe (13) from tank (12). Valve (25) is then adjusted to admit to pump through pipe (24) a quantity of light oil distillate equal to about 10 per cent of the total fluid being charged.

The mixture consisting of about 90 per cent raw emulsion and 10 per cent light oil distillate being discharged by pump (14) passes through pipe (15) to heat exchanger (16). In passing heat exchanger the mixture is heated. It then passes through pipe (17) into spray (18) where in a finely divided state it is brought into intimate contact with the hot vapors in the evaporator.

The exchange of heat between the incoming mixture and the hot vapors brings about the evaporation of the water and some light oil distillate from the incoming mixture and a partial condensation of the hot vapors.

The vapors of the water and light oil driven from the incoming mixture pass from the evaporator through pipe (4) into condenser (5) where condensation takes place. The condensate consisting of water and light oil passes through pipe (6) to water separator (7). The water settles to the bottom and overflows through siphon (8) while the light oil passes through pipe (9) to storage tank (10).

More light oil is continually produced than is required for mixing with the raw emulsion and for this reason tank (10) is always full. The surplus light oil being produced overflows through pipe (11) and may be recovered as a separate product or mixed back with the dry oil leaving the still.

The oil which represents the residue from the incoming mixture after having its water and light oil removed flows downward in evaporator (3) toward the still. Mixed with this dry oil is such oil as was condensed from the hot vapors from the incoming charge. This mixture passes through pipe (2) into trap (19).

Any unusually heavy solids settle in that trap and the dry oil and some suspended solids pass through pipe (21) into still (1). In the latter hot vapors of about 350 F. are evolved and returned to the evaporator to repeat the cycle while the residue from the still passes through pipe (22) to heat exchanger where it gives up part of its heat to the incoming mixture and is thus cooled to a temperature where there is no loss by evaporation. From the heat exchanger the dry oil passes through pipe (23) to storage.

The drawing shown here does not include the temperature indicating, recording and controlling devices and certain non-essential valves and fittings.

The temperature must be considerably above 212 F. to drive off the water. At the boiling point, the surface film surrounding the water droplets is too strong to permit the steam to escape. In emulsion containing very small droplets, the temperature may have to reach 300 F.

An advantage of this method is the application of heat inside the container in which the water is evaporating. Where heat is applied from the outside, heavy scale quickly forms and forces frequent shutdowns for cleaning still or boiler.

Dilution of the bottoms with light oil is necessary to reduce the viscosity and permit easier escape of the steam. Without such dilution there would be foaming and bumping in the evaporator.

The plant now in operation is located on a Gulf (Gypsy) tank farm in Kansas. It consists of three units, each having a 40-45 horsepower oil field boiler as a still. The plant was built entirely of second hand material. The boilers are old ones which could no longer be used under pressure. The use of very old boilers, however, is not recommended.

Total cost of the plant as shown by the records is about $9600. Some of the items, it is pointed out, should be charged to research and development expense. The plant produced from 7000 to 8000 barrels of good oil per month with an operating cost of about $800. The accumulation on which the plant operates contains from 35 to 40 per cent water.

Operation was started last summer and in spite of the prolonged spell of sub-zero weather this winter has been continuous. Each unit averages about three days shut-down time each month for cleaning and minor repairs.

When running with the correct amount of light oil distillate in the emulsion and the still temperature above 400 F. evaporation of all water

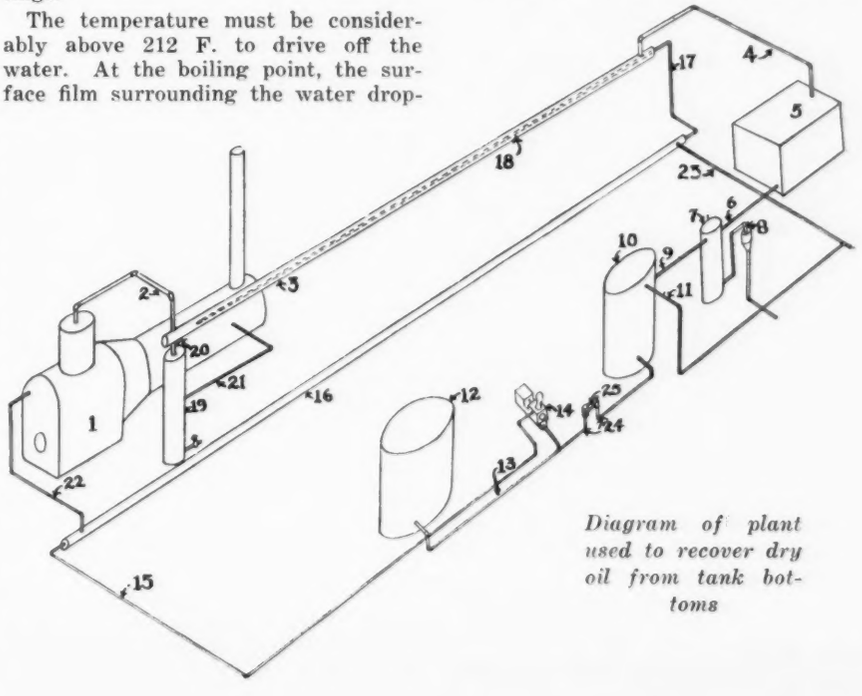


Diagram of plant used to recover dry oil from tank bottoms

takes place in the evaporator with little or no foaming and no solid matter collects in the evaporator. A small amount does collect in the sediment trap and is cleaned out once each month.

Because of the violent agitation in the still, very little solid matter settles there. Using the type of still here shown, such solid matter as does settle goes to the cooler portion of the still and does not cause burning out or warping of still plates. It does not collect as a hard, solid mass, or as scale, but as a sludge that can be readily cleaned out. It is customary to clean out each month.

The dry oil discharged from the plant may contain as much as one per cent of solid matter in suspension, but much of this settles out during transportation and storage.

Products of this process may be a light, high gravity distillate of good color and a heavy residue oil, or the two may be mixed to produce a product similar to a heavy crude oil. By proper control of temperatures in the stills it is possible to increase or decrease at will, within limits, the amount of distillate being produced.

Fuel for the operation of the plant is taken, as far as possible, from the bottom of the stills. A certain amount of the heavier constituents is thus disposed of, at the same time burning to ash a considerable amount of the solid matter settling from the oil in the still.

Water is required for the cooling of condensers and as a supply for the steam used to drive the pumps. The water produced as a condensate from the process supplies a part of the make-up water required. It is slightly acid, but when mixed with the usual water supply makes a satisfactory boiler water.

The only part of the original emulsion not turned into good oil or a fairly good water is the solid matter removed from the settling traps and stills. It is small in volume and being water free is quickly burned when thrown into the furnace under the still.

Some of the advantages of this type of assemblage are that there is no pressure and there is no chance for leaks or breaks to spray hot oil over the apparatus and operators; only one pump is used, all fluids moving by gravity except the bottoms going to the evaporator; a thermostat on the boiler makes the operation automatic. Little supervision is required aside from occasional observation to see that the steam pump and oil feed are functioning.

Siliceous Lime Hopes of West Kansas Awakened by Schurr Pool

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, Feb. 22

THE recent discovery of a second "Siliceous lime" producing area in western Kansas, i.e., the Schurr pool of southwestern Rice county, has strengthened considerably the oil possibilities of that part of the state. Following so closely the original discovery of production in this same horizon, 40 miles northwest in Russell county, it lifts the pall of pessimism that has hung so long over western Kansas.

Operators have not forgotton that Eldorado, the most prolific pool the state has even known, obtained the major portion of its oil from the "Siliceous." Nor have they missed the significance of this "pay" elsewhere in the Mid-Continent. Hence, there is some justification for the excitement caused by finding it productive in the western ranges of the state where until recently it had only been hoped for.

The Schurr pool in 21-20-10W, Rice county, made its first bid for publicity some months ago when it began life with Gorham sand production which tested 52 gravity A.P.I. This was the highest grade crude ever found in Kansas. The discovery well is owned by Slick-Pryor & Lockhart and was bottomed at 3280 feet in the conglomeritic zone found at contact of the Pennsylvanian formations with the beds immediately below.

Its initial production of 197 barrels of high gravity crude attracted considerable attention regardless of the fact that the well was also showing water. Previous to being deepened it was making about 50 barrels of oil and 65 barrels of water, though the gravity has held up to its original figure.

The well was immediately offset by the Producers & Refiners Oil Co. on the north, and by the Independent Oil & Gas Co. on the northeast. Both of these wells found water in the horizon from which the discovery well was producing. The Independent shut its well down at 3310 while the Producers & Refiners drilled 21 feet further to the "Siliceous Lime." At this point the latter well filled rapidly and swabbed an initial of 340 barrels of 41 gravity oil.

The Independent well, in reaching for the same pay last week, had its first show at 3325. The log shows siliceous lime and dolomite from that point to 3332. The hole filled with oil in a few hours. A swabbing test resulted in 496 barrels of oil and no water. Four feet higher on the "Siliceous lime" than its west offset, it is also a much better well.

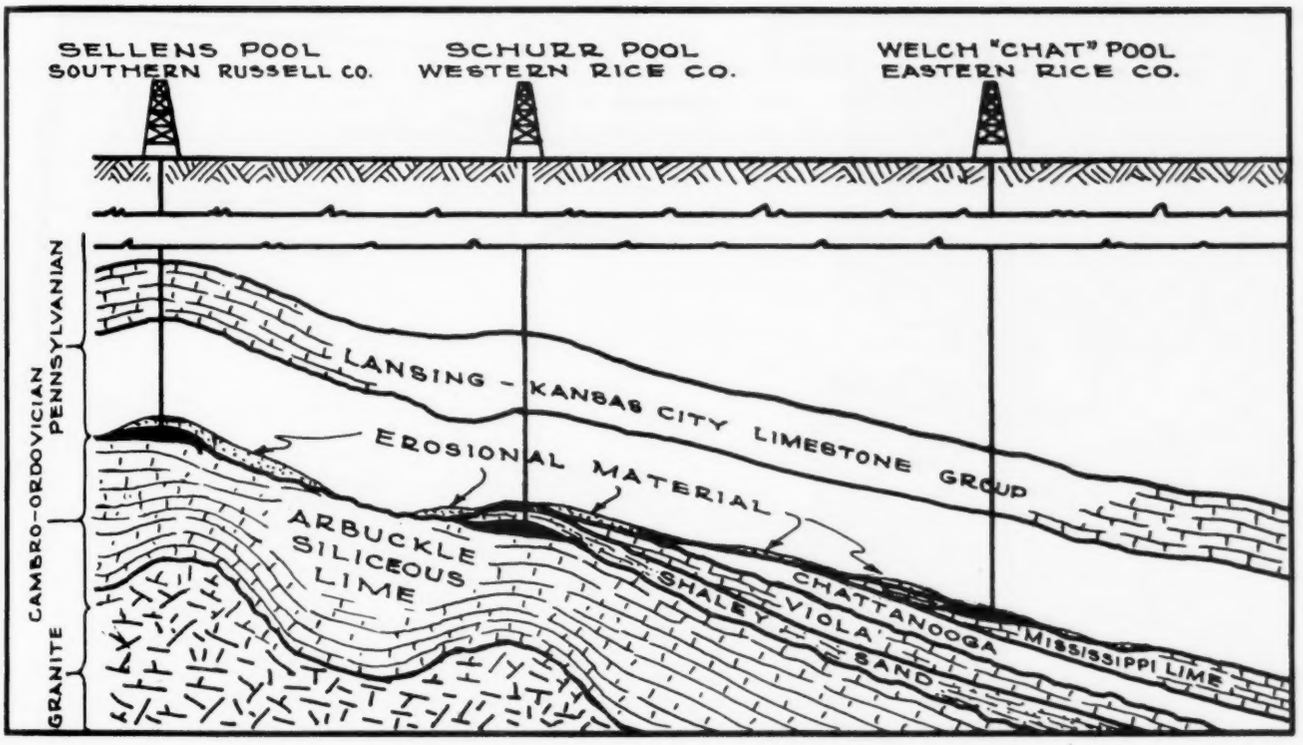
The history of the Sellens area in 36-15-13W, in Russell county, is almost identical even to the name of the owners of the discovery well. Here too, the original wells were allowed to produce from the basal Pennsylvanian conglomerate until offset wells found a better pay in the "Siliceous lime" below.

It was not until December of last year that the Slick-Prairie No. 2 Sellens was deepened to this horizon, resulting in an initial swabbing test of 424 barrels. The total depths of the wells in this pool will not average much more than 30 feet deeper than those in the Schurr area. The gravity of the oil, however, is from two to three degrees lower.

Both of these pools are located on fairly well defined structures as shown on the accompanying cross-section. The Welch or Rice county pool, in the southeastern corner of that county, owes its existence to a lense rather than to structural conditions. It is producing 33 gravity oil from the Chat formation of upper Mississippian.

The wells in this pool will average from 100 to 200 feet deeper than those of the Schurr area, 25 miles due west, yet to reach the Arbuckle in this pool would require considerably deeper drilling. The reason for this may be seen in the cross-section.

If the pre-Pennsylvanian section below the Welch pool were the normal section as found in the eastern part of the state, the "Siliceous lime" would be even more inaccessible than it now appears. For many years it was thought that this eastern section, consisting of great thicknesses of Mississippian and Siluro-Devonian sediments, covered the Arbuckle over all of western Kansas. Wildcatting has shown that there is a progressive



Generalized cross-section in western Kansas showing the structure of the Sellens and Schurr pools and the relation of their "Siliceous lime" production to the "Chat" of the older Welch pool

thinning of these beds toward the west and north until the Pennsylvanian beds rest directly on the Ordovician or the pre-Cambrian granites.

The reason for the thinning or non-existence of certain beds in the western part of the state is due primarily to the regional dip of the older rocks. The Ordovician strata dip southeastward into Oklahoma, as is shown by the depth at which "Siliceous lime" production is found at Oklahoma City and at Garber. Northwestward across Kansas, they rise nearer and nearer the surface with even the Pennsylvanian beds thinning above them.

With the alternate advance and recession of the early seas toward this old land mass, the beds of a normal section were deposited over it. It is doubtful whether any of the post Ordovician-pre-Pennsylvanian seas ever covered all of western Kansas. The deposition of the section from Simpson to Mississippi lime was rather by overlap on the old eroded surface of the Arbuckle.

Well logs of the area show several major unconformities which indicate long periods of erosion in which great masses of sediments were removed. This is one of the reasons for the non-existence of certain of the familiar Siluro-Devonian beds below the Welch pool.

The Schurr pool seems to have been very near the edge of the overlapping in that part of the state, though it is quite evident that erosion played a very important part in removing many of the beds above the local structure. Its position on the Barton Arch, a major fold of the Arbuckle, made of it a promontory subject to intense and prolonged erosion. Before it could be entirely worn down however, it was covered by the Pennsylvanian sea, leaving the structure much as it is found today.

The same is true of the Sellens area in southern Russell county except that all of the sediments above the "Siliceous lime" were either removed or not deposited. Between the Pennsylvanian and the lower big pay there is but a comparatively thin deposit of erosional material. At Schurr there is also a 50 foot bed of shaley sand which bears a resemblance to the Wilcox of Simpson age, though few geologists believe it to be of that series. It is not productive however, as the oil is found in the Arbuckle immediately below it.

The erosional material as shown in the cross-section, is not a continuous or persistent bed. It is found in lenses of a thickness varying from 35 to 180 feet over much of western Kansas. In any number of wells it has not even been present. Made up of "chat" pebbles, red and green shale, and fragments of limestone, it represents material of several different ages.

It is thought that a post-Pennsylvanian fold known as the Ellsworth arch also crosses the Schurr pool thus making it the focal point for two cross trends. The trend of the Barton arch is northwest-southeast while the Ellsworth arch runs northeast-southwest. Cross trends are common in the Mid-Continent as may be noted by even a casual study of the location of pools in the state of Oklahoma.

Since the Sellens pool and the Schurr pool seem to be located on parallel trends it is hoped that a cross trend also exists. It is a reasonable supposition. Test wells between the two pools probably will be drilled and they will be watched with interest by geologists as well as producers.

Because of the more or less tricky nature of "Siliceous lime" production, many operators have refused to get excited over the new discoveries. It is quite true that the fact that the oil is found in the "Siliceous" in these new areas is more impressive than the quantity of the production. But the lease play that has been going on in both counties as a result of the new wells, indicates that suppressed emotions is not the order of the day.

There is very little checkerboarding, for most of the acreage already was held in large blocks by the major oil companies. The Sinclair Oil & Gas Co., and the Empire Oil & Gas Co., have large holdings near the Sellen pool, while the Prairie Oil & Gas Co., and the Shell Petroleum Corp.. have bought more acreage to add to their blocks in the same area. The Sinclair Pipe Line is taking most of the oil in their 4-inch line to their loading rack at Oaks.

In the Schurr area T. B. Slick, Independent Oil & Gas, Producers & Refiners and Vickers Oil Co., occupy what appears to be the favored positions as regards acreage, though the Carter, Gypsy, Texas, and Skelly Oil Cos. all have holdings near the wells. There is no pipe line connection in the pool as yet.

FORM 215 LONG 200M [redacted]

THE [redacted] OIL COMPANY
INTER-COMPANY COMMUNICATION

TO

Refer to Mr. [redacted]

Place

Subject

FROM

Division [redacted] Refinery,

Place [redacted]

Date August 30, 1929.

Dear Mr. [redacted]

On Wednesday afternoon, [redacted], we had quite an electrical storm at [redacted], which lasted for about a half-hour. During the period of the storm a flash of lightning caused the vapor on Tank #213 to ignite at the OCECO Safety vent. This burned for about one minute and then went out of its own accord.

In the tank at the time we had 9,000 barrels of straight run gasoline.

This is the first time that we have experienced at [redacted] a fire caused by lightning and there was quite a bit of excitement for a short while, but fortunately there was no damage done.

Yours very truly,

[redacted]

Superintendent

A Severe Electrical Storm and A Tank of Straight Run Gasoline

THIS is just another instance where foresight was responsible for a big saving—this company's tanks were OCECO equipped.

THE OIL CONSERVATION ENGINEERING CO.
877 ADDISON ROAD ❖ CLEVELAND, OHIO

Engineering and Sales Service:

25 Broadway, New York
Box 552, Beaumont, Texas
Tulsa Trust Bldg., Tulsa, Okla.
Neilan, Schumacher & Co., Los Angeles, Cal.

Flexibility Helps Refiner Show Profit Even When Times Are Bad

By Arch L. Foster
N. P. N. STAFF WRITER

LEACH, KY.

THE problem of making a modern refinery out of an obsolescent one, without excessive cost or long shut-downs and without discarding mechanically good equipment which could be utilized in the new plant to advantage, is what faced the Ashland Refining Co. six years ago when it took over an old plant at Leach, near Ashland, Kentucky. The operators solved the problem, rebuilt the plant, and made a paying refinery of 5000 barrels per day capacity out of an 1800 barrel plant which was steadil losing money, and they did it without wasting hard money and without increasing the original plant's still installation.

The old plant was of the shell sti! type, without fractionating towers, a simple "gooseneck" connecting the still with the pipe-coil box condenser. The theoretical maximum throughput was about 1800 barrels per day, but 30,000 barrels was the largest actual throughput in one month. Each still and its condenser formed a separate unit, not being interconnected in any way. Treating apparatus was of the simplest, batch agitators being employed to treat products to meet the rather lax current specifications.

By the addition of four bubble towers, with the accompanying reflux condensers as heat exchangers, and by re-connecting the shell stills to form a continuous battery, the capacity of the plant was increased to about 3000 barrels per day. Subsequent installation of a Sturtevant Economizer to transfer heat from the stack gases to the incoming crude reduced the temperature of the stack gases some 800 Fahrenheit degrees, and raised the throughput to more than 4000 barrels per day.

A light cut obtained from the crude before it reaches the shell still battery, by flashing it, after passing through the economizer, in the first main bubble tower. This gives three light cuts from the crude by means of the heat recovered in the various exchangers.

Much of the credit for the successful development of the plant to its present efficient state is due to Fred W. Irwin, general superintendent of the company, who planned practically all of the changes and kept the plant's throughput up to normal during the installation of the new equipment. At no time during the rebuilding of the plant was it necessary to shut down the still battery or to curtail output while adding new equipment or completing new hookups.

> IN THE Ashland Refinery the sales and manufacturing heads are always in very close contact, each understanding the demands to be met by the other, and fitting the management of his own organization to that of the other as far as possible.
>
> The sales manager knows what the plant manager can make, and informs the manufacturing division as to the specifications of products that are, or may be contracted for; the plant manufactures those products at the direction of the sales manager.
>
> Such an arrangement is feasible due, the company officials say, to the comparative small size of the organization and the consequent intimate contact possible between the different divisions.

The plant was gradually rebuilt to give the maximum flexibility of operation obtainable and widest variation in properties of the products that could be obtained from the Somerset crude being run. This flexibility of operation and variability of products is essential to the purpose of the plant.

The company, a subsidiary of the Swiss Oil Corp., the largest producers of crude in Eastern Kentucky, of which the Hon. T. A. Combs of Lexington, Ky., is president, specializes in the production of a large number of special naphthas to meet the specifications of the individual purchasers.

The manufacturing division must therefore be able and ready at a moment's notice to vary the products coming off the unit over very wide ranges without interrupting smooth operation and without material interference with the specifications of other products being made simultaneously, or increasing the cost of production. It is this ability of the operating force to do this that makes the plant a paying proposition and gives it a unique position among refineries.

Plant Equipment

The present distillation unit consists of the four original shell stills, six fractionating towers, heat exchangers, economizer, and condensing equipment. Figure 1 gives some idea of the setup. A cracking unit also forms a part of the plant, and this and auxiliary equipment will be taken up later on in the article.

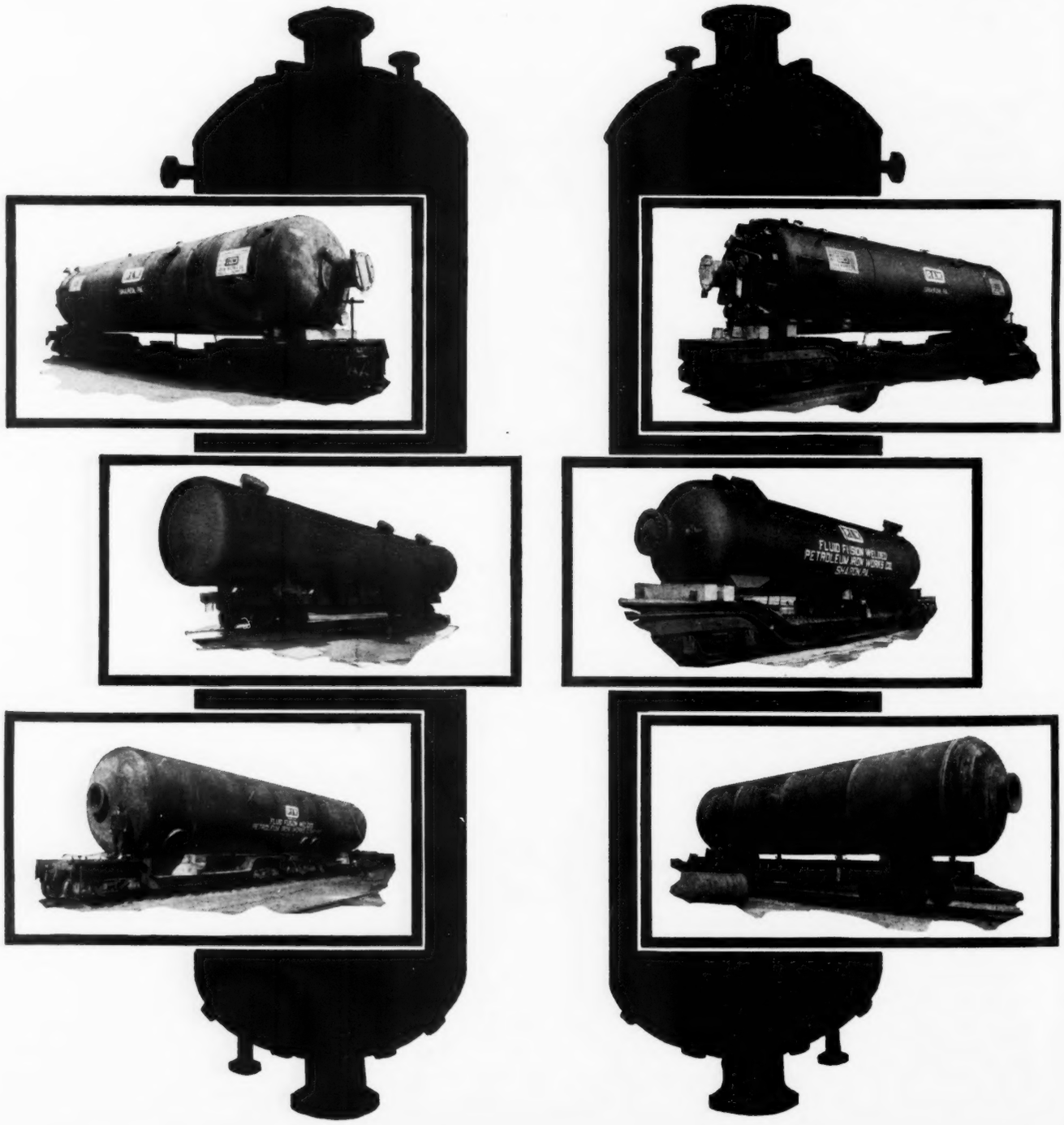
The stills are of the conventional horizontal cylinder type, 10 feet in diameter by 36 feet long, with a working capacity of 500 barrels each; interconnected for continuous operation by 6-inch lagged lines equipped with suitable valves and by-passes to enable the operator to cut out or crossconnect individual stills in any manner desired to facilitate repairs or to meet specific conditions of operation. The fourth still and tower are most commonly used to rerun pressure distillate, but may be connected into the continuous crude battery by simply manipulating valves.

Ten-inch lagged vapor lines connect stills to towers. One of the essential features in the design of the unit is the system of cross-connection of the towers, as is shown in part in Fig. 2. An intricate but not complicated system of lagged pipes connects the entire set of towers, except the small auxiliary "flash tower," in such manner

Analysis of sample of Somerset, Ky., crude by Bureau of Mines Hempel Distillation
Taken from B. of M. Tech. Paper No. 2910

	Gasoline light ends	Total gasoline and naphtha	Kerosene distillate	Gas oil	Nonviscous lubricating distillate	Med. lub. distillate	Visc. lub. distillate	Residuum
Percent	11.2	30.2	9.5	11.2	8.4	9.6	1.4	26.7
A.P.I. Gr.	76.3	61.5	42.3	36.0	31.5-27.5	27.5-22.8	22.8-22.1	.....

MONUMENTS · OF · SAFETY · IN · · FLUID-FUSION · WELDED · · · CRACKING · VESSELS



The PETROLEUM IRON WORKS Co.
SHARON, PENNA.

P.I.W. STEEL PLATE CONSTRUCTION

NEW YORK CHICAGO TULSA

that any one or more towers may be cut out of the system, connected to different stills, receive vapor in series, parallel, or in any practicable manner, at the will of the operator.

Also stills and towers may be inter or cross-connected with each other in a multitude of hookups to vary overhead or residuum products to produce an extremely wide variation in specifications to meet market demands.

The small flash tower is 3½ feet in diameter by 19½ feet high, the upper half filled with packing rings, the lower fitted with stripping pans; the preheated crude is flashed here to remove the lightest cut, as will be described later under "Operation." The flashing of the lightest fraction also is a means for controlling the initial point of the fraction from the next tower. The large flash tower (not numbered in flowsheet), is riveted and welded, of 3-inch plate, five feet in diameter by 28 feet high, containing eight bubble decks at about 15-inch intervals above, and a series of pans, below, similar to those in the small tower.

Towers Nos. 2, 3, and the re-run tower shown in Fig. 3 were designed by the Southwestern Engineering Corp. They are constructed with ⅜-inch shells. Towers Nos. 2 and 3 are five feet in diameter by 28 feet high, and contain 12 bubble plates fitted with the older inverted trough type caps with serrated edges, 3 inches maximum width, spaced on 5-inch centers, extending the width of the plate. A row of 1½-inch cylindrical risers at 5 and 6-inch distances 3½ inches high carry vapor from the space beneath through and underneath the caps.

Bubbles plates were originally equipped with three 4-inch down spouts. In some cases one of these has been plugged with no apparent loss of efficiency. Plates below the crude inlet have three 6-inch rundowns, to care for the greater quantity of liquid handled. Plate interval is 20 inches. The pressure distillate re-run tower is of similar construction, six feet in diameter by 35 feet high, with 16 plates.

Tower No. 1 was erected at a somewhat later date than those just described, by the Winkler-Koch Engineering Co. It is five feet by 29 feet, fitted with 12 cast iron plates, at 24-inch intervals, packed at the edge with an asbestos ring saturated with waterglass to insure a tight joint between the plate and the support, welded to the shell.

Risers are 3-inch, and the round caps are 4½ inches in diameter, with slotted vertical wall; an outside horizontal flange, made integral with the cap body and set at about the plate liquid level is also slotted and increases the bubble break-up effect. Elliptical rundowns equivalent in cross-section to a 6-inch pipe are used. A 24-inch manhole placed between each pair of plates

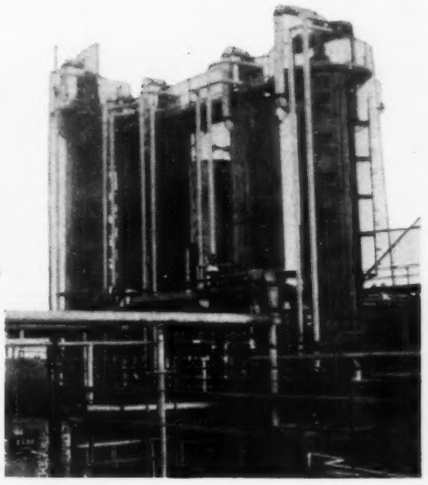


Fig. 1—Continuous still battery and bubble towers, Ashland Refinery

facilitates cleaning and repairs inside the tower.

The cross-connecting lines between the towers are 10 inches in diameter, with suitable gate valves for making any changes desired, lagged, and arranged carefully in parallel lines, as shown in Fig. 2.

Two of the towers are equipped with horizontal cylindrical heat exchangers which serve as closed reflux condensers, ascending vapors being partially condensed by exchange with the incoming crude, as shown later. Three towers have "box" type exchangers for the same purpose, all located at the top of the tower.

Two additional heat exchangers are used to recover the maximum amount of heat from still bottoms and stack gases respectively. A 1000 square foot Southwestern exchanger "swaps" heat from outgoing still bottoms to the incoming crude and an economizer designed by the Ashland Co., built by B. F. Sturtevant & Co., effects a very important exchange between combustion gases on their way to the stack, and the partially heated crude. This equipment added more than 1000 barrels per day to the capacity of the plant, and was hooked into operation with only 72 hours loss of production from the stills.

This economizer contains 13 sections of five tubes each arranged in two groups of six and seven sections respectively. The tubes are the ring or fin type, three inches inside diameter, eight feet long, expanded into cast steel headers. Removable plugs are placed directly in front of each header to facilitate inspection.

Furnace gases are conducted through a 4-foot by 4-foot, asbestos and firebrick insulated, underground breeching to the economizer, and after passing through both sections goes to the steel stack, 4½ feet in diameter and 120 feet in height. Dampers and suitable by-pass breechings enable the operator to cut either section out of the system for cleaning or repair, without interfering with the other, as shown in Fig. 3. The economizer is shown in Fig. 4.

The residuum from the topping battery is cracked in a 100-barrel Dubbs unit, the chief point of interest in handling of the unit being the injection of exhaust steam, through several flattened 2-inch pipes thrust through the furnace wall, just above the top bank of tubes in the radiant section of the furnace, which gives better heat distribution, more radiant heat, and very much longer life to tubes in that section. This steam injection added over 10 per cent to the cracking plant throughput.

Operation of the Plant

It must be understood that, in a plant producing such widely varying products as those made in this refinery, no set of running conditions can be given which will be more than representative. Consequently the operating conditions and chemical and physical

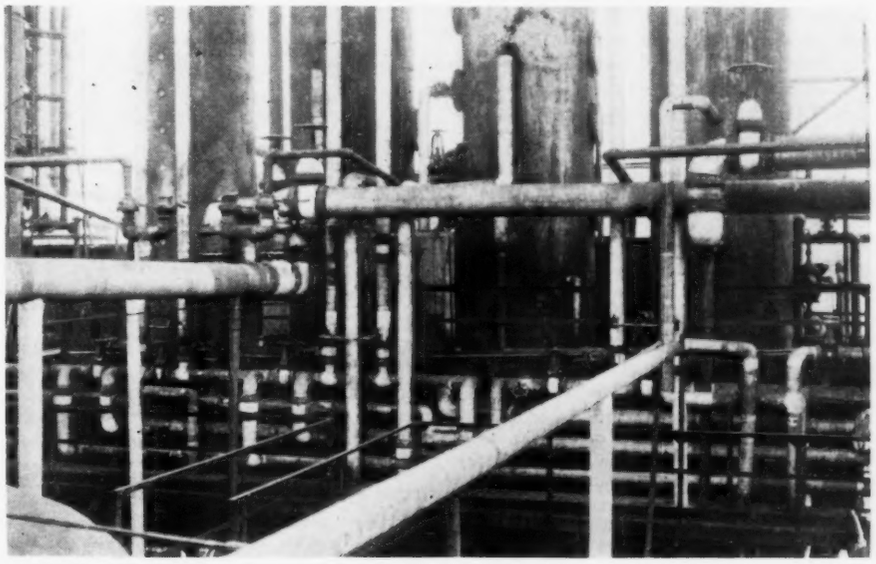


Fig. 2—Interconnecting Vapor Lines on bubble towers

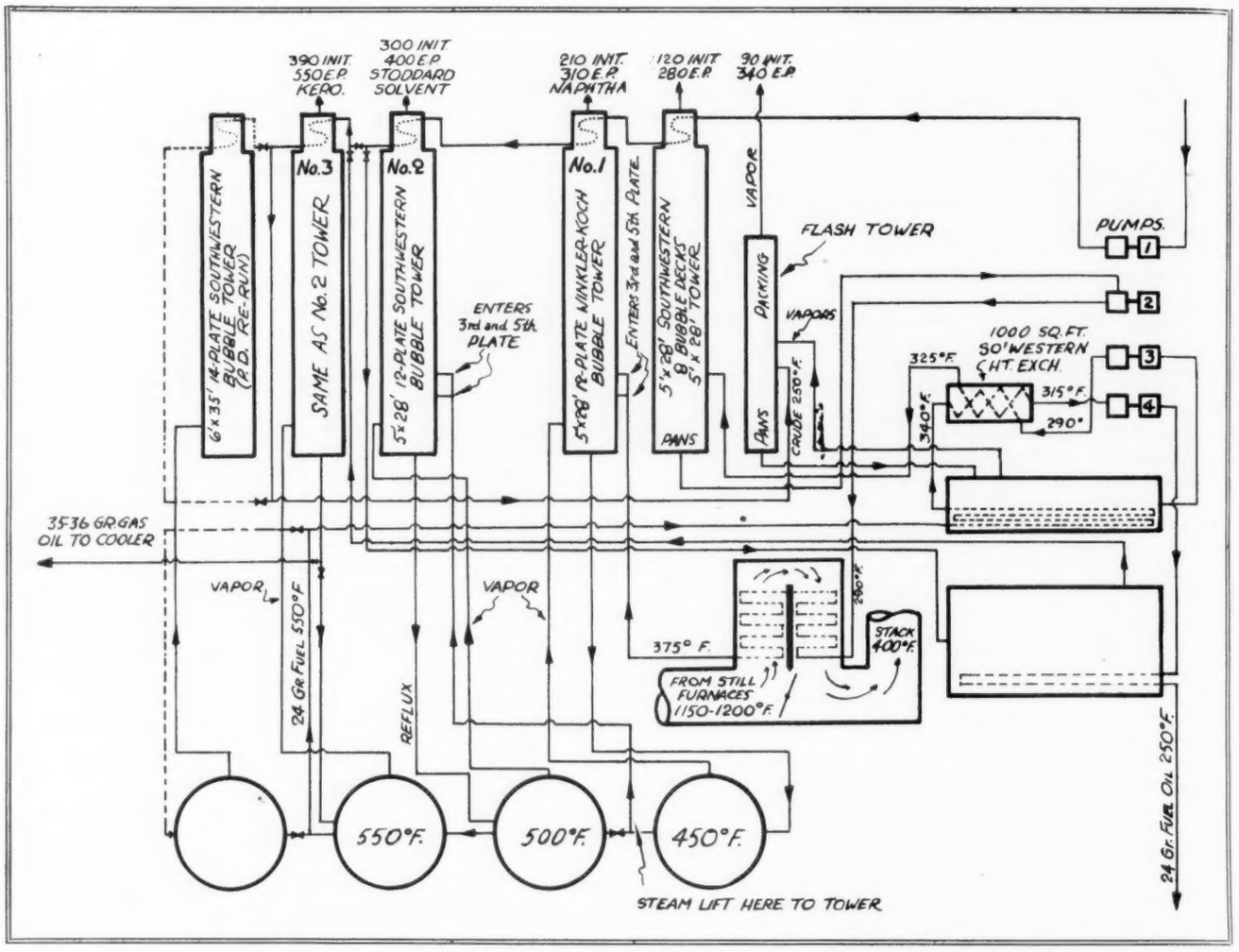


Fig. 3—Flowsheet of topping battery, Ashland Refinery. (Courtesy F. W. Irwin)

properties of the products mentioned here are to be considered as only indicative of one plan of operation, and are given chiefly for illustration purposes, although they were chosen from actual plant data to show bona fide operation procedure.

As has been stressed already, it is the great flexibility of the plant that is its main point of interest, and that has made it possible for the company to meet successfully the peculiar conditions of market demand, operating profitably at maximum capacity for six years.

Somerset crude of about 37.0 to 37.5 API gravity is pumped to the reflux condensers of the first three towers, the first eight-plates. Southwestern and towers marked 1 and 2 in the accompanying flowsheet at a rate of 160 to 180 barrels per hour; the crude then passes to a settling tank, a horizontal cylinder 10 feet in diameter by 36 feet in length, to permit the salt in the crude to settle out. This tank is heated by the topped crude from the last shell still on its way to the cracking still charging stock tank.

The salt in the crude is much of it very finely dispersed through the oil and is difficult to induce to settle completely, so that other means must be employed to counteract its deleterious effects, as will be shown later. The following analysis gives the composition of the salt, in pounds per 1000 barrels of crude.

Salt	Lbs.
NaCl	84.4
$CaCl_2$	36.0
$MgCl_2$	9.3
Total Chlorides	129.7

From the first settler the crude passes, still with an appreciable amount of salt in suspension, to the reflux condenser on tower No. 3, where it receives additional heat, and is pumped to and flashed in the small flash tower, at a temperature of about 225 F., yielding an overhead stream of 80 A.P.I. gravity naphtha used for blending purposes. Bottoms from this tower pass to another salt settler heated by topped crude from the last shell still, a vapor line also connecting this settler with the small flash tower to carry off any additional light material vaporized in the settler.

Leaving this settler at a temperature around 290 F. the incoming crude absorbs more heat from the topped crude in the 1000 square feet Southwestern exchanges, and is flashed at a temperature of ca. 325 F. in the large flash tower, vaporizing an overhead stream which shows typically 68 gravity, an initial of 120 F. and end point up to 280 F.

Bottoms from this tower are further heated by passing through the Sturtevant economizer. Here the furnace gases, which before the installation of the economizer passed to the stack at a temperature of 1100 to 1200 F., have their temperature lowered to approximately 400 F., which the operators believe compares favorably with tube still practice.

The crude is next flashed into No. 1 tower at a temperature of about 360 to 390 F., entering the tower at the third and fifth plates.

Liquid ammonia at the rate of about 60-70 pounds per day is introduced into this tower to neutralize this hydrochloric acid formed by the decomposition of chloride, chiefly mannesium chloride.

Unvaporized oil passes from tower No. 1 to the first shell still where the oil temperature is held normally at about 450 F., the vapors generated in this still being conducted also to the same tower (No. 1). Liquid oil from the first still may either be lifted, all or part, by steam jet to the second

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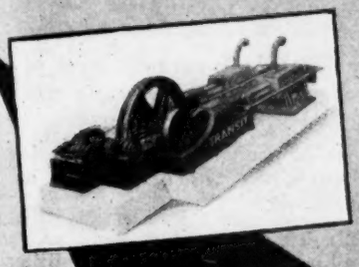
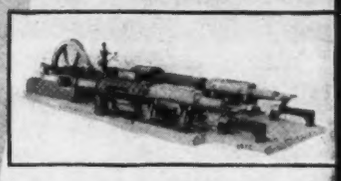
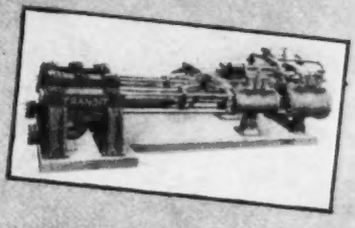
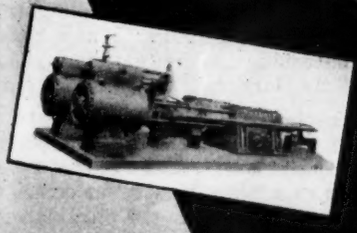
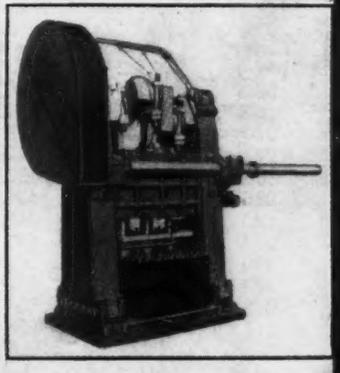
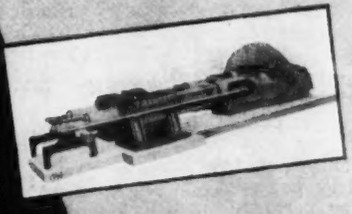
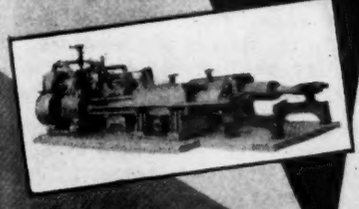
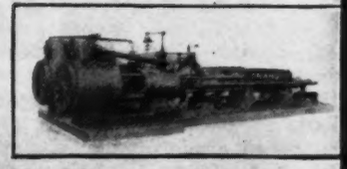
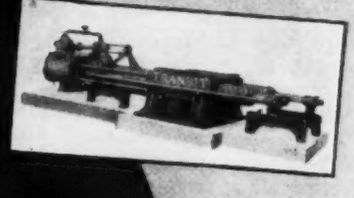

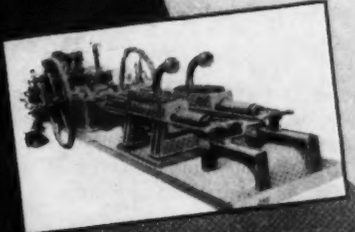

NATIONAL TRANSIT
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OIL CITY, PA.

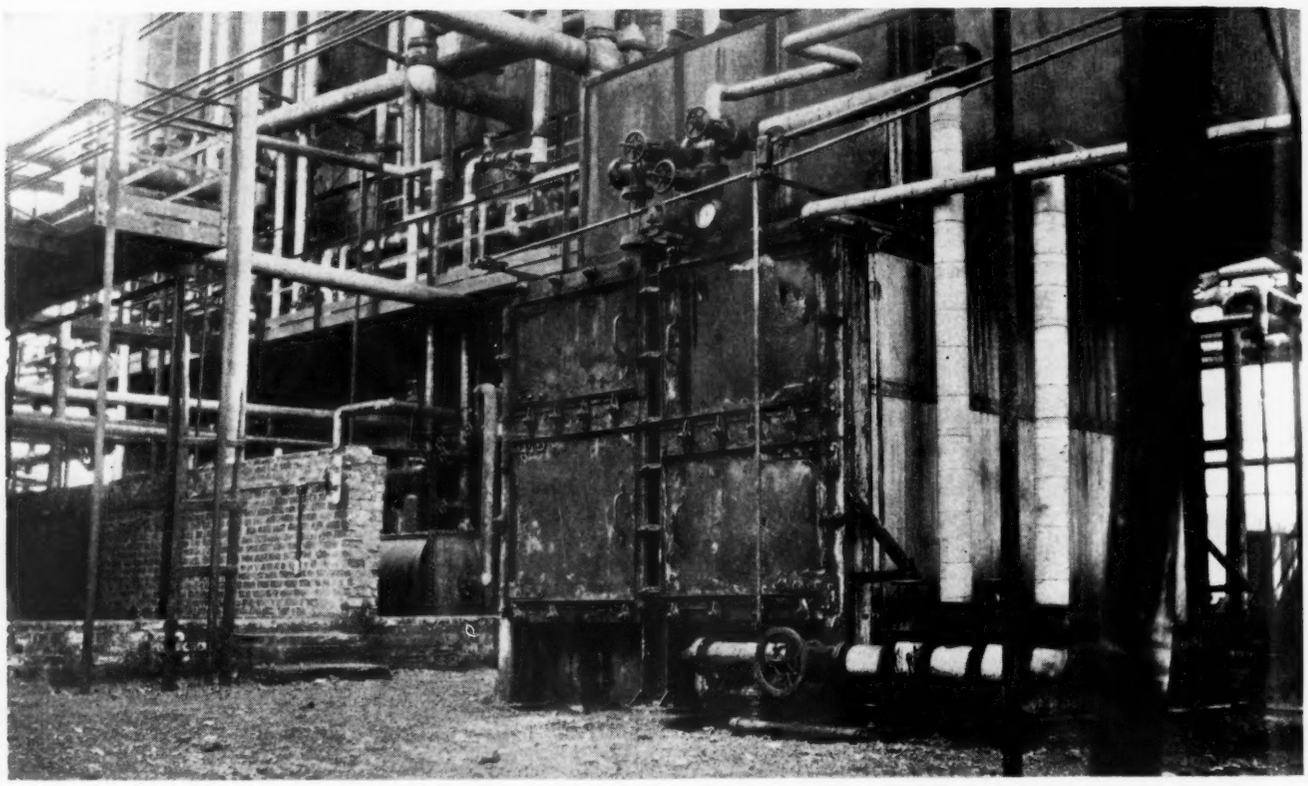

Fig. 4—Sturtevant economizer. Crude enters through lower pipe; furnace gases enter below ground level at left, exit through breeching above

Table No. 3

Distillation of Tower Cuts

	Small Flash Tower	Large Flash Tower	Tower No. 1	Tower No. 2	Tower No. 3
Gravity at 60/60 F.....	80.1	67.2	58.3	49.0	41.5
Initial	75F.	123F.	203F.	306F.	390F.
Five per cent	88	146	220	315	406
Ten per cent	97	156	224	320	412
Twenty per cent	114	174	230	326	422
Thirty per cent	130	187	236	334	436
Fifty per cent	170	202	245	343	458
Seventy per cent	220	220	256	357	484
Eighty per cent	242	235	270	368	504
Ninety per cent	338	258	284	383	530
Ninety-five per cent	.....	279	300	395	553
End Point	338	294	316	400	576
Recovery	90.0%	97.0%	98.0%	98.0%	98.0%
Residue	1.0	1.0	1.0	1.0	1.0
Loss	9.0	2.0	1.0	1.0	1.0

tower, or all passed to the second still at the will of the stillman.

In either case the run-back from the second tower is returned to the second still, where the temperature of around 500 F. vaporizes a heavier cut which, after reflux, and the introduction of varying amounts of steam into the tower dependent on the distillate desired, is made into solvents of various specifications, for instance, Stoddard Solvent for dry-cleaning. Reflux in all main towers in controlled by the crude preheater, and by the amount of steam admitted to each tower.

Second still bottoms pass to the third still, from which mainly kerosene distillate is obtained, the oil temperature here being held usually at about 550 to 600 F. A gas oil cut is taken from the bottom of the third tower. The topped crude from this still passes directly to the heat exchangers to preheat the incoming crude as previously described.

This topped crude or fuel oil, at a gravity of about 24.0 A.P.I., is cracked to give a fluid residuum or to coke, as conditions require, at a pressure of 175 to 190 pounds, the incoming charging stock preheated by the hot bottoms to 700-750 F., and leaving the tube still a 900-920 F.

Residuum from the soaking chamber is also flashed in an auxiliary chamber where the pressure is reduced to about 30 pounds, a gas oil fraction being obtained which is used as recycle stock.

The cracking plant yield of motor gasoline under optimum conditions is approximately 55 per cent, as indicated by A.S.T.M. distillation results, when flashing. When running "non-residuum" the gasoline yield is slightly larger.

Most of the distillates are treated in more or less conventional manner in continuous treaters' kerosene and other cuts being treated on occasion in a batch agitator. Necessarily the great variety of products made and the rigid specifications to be met in many cases, necessitates wide variation in the details of treatment, which will not be discussed here.

The following table gives a general idea of the over-head vapor temperatures, and the percentage of distillate from the different towers, taken from plant data records under one set of operating conditions.

Table No. 1

	Small flash tower	Large flash tower	Main towers No. 1	Main towers No. 2	Main towers No. 3
Temp.	150F.	200F.	235F.	290F.	385F.
Per cent	7.0	8.0	9.0	8.0	10-12.0

That the properties of the different tower products can be varied widely to suit different conditions and specifications is illustrated by the data given below, taken from typical distillation data obtained in the laboratory during the last few years, the initial

(*Continued on Page* 91)

Modern Refining — Science and Practice

By Colonel George A Burrell*

Article 13

Treating Light Distillates; Action of Sulfuric Acid; Caustic Soda; Sodium and Calcium Hypochlorite

CERTAIN sulfur compounds are recognized as occurring in crude petroleum or its distillates. These are hydrogen sulfide, free sulfur, alkyl sulfides or thioethers $(C_2H_5)_2S$, thiophene (C_4H_4S) like compounds, alkyl disulfides and mercaptans. Comay[1] of the Universal Oil Products Co., has noted that of the sulfur compounds in pressure distillate, over 50 per cent is usually present in the form of thiophene (residual sulfur) the rest being mercaptans, disulfides and alkyl sulfides.

According to Sidney Born[2] Pecos Valley (Texas) crude oil contains,

	Per cent
Sulfur as hydrogen sulfide	.026
Sulfur as elementary sulfur	.025
Sulfur as mercaptans	.052

and the naphtha from the crude oil contains,

Hydrogen sulfide	.003
Elementary sulfur	.012
Mercaptan sulfur	.044
Disulfide sulfur	.032
Sulfide sulfur	.082
Residual sulfur	.049
	.222

McKittrick[3] made a study of the thiophene sulfur compounds in cracked gasoline. One per cent was present as thiophene, 7 per cent as thiotolene isomers and 15 per cent as thioxene isomers, leaving 77 per cent in the fraction boiling above 160 C.

Thiophene is non-corrosive and resists heat to a remarkable degree, as shown by Faragher and Morrell. The other compounds decompose at high temperatures to hydrogen sulfide, free sulfur and other substances. Hydrogen sulfide is usually quickly (and easily) removed at the end of the condenser box by means of a caustic soda wash.[4] In time it oxidizes to free sulfur. Most reagents will not remove this substance[5] and it reacts to the copper strip test.

Birch and Norris[6] examined the light oil from Persian petroleum. They found elementary sulfur, hydrogen sulfide, ethyl and possibly isoamyl mercaptans, together with a series of neutral sulfur compounds containing substances which react with mercuric chloride, probably alkyl sulfides.

The author feels that there is not sufficient experimental evidence for retaining the present sulfur specification of 0.10 per cent. In many cases, it is disregarded. He has examined work from various sources; that of Diggs,[7] Halloran,[8] White[9] and Mougey,[10] and has been in touch with various agencies, the Bureau of Standards, General Motors Co., various Standard oil companies, etc., but can find nowhere any conclusive results that indicate that a limit of 0.10 per cent sulfur should be placed on motor fuel.

Egloff reports that there is no sulfur specification in England and that in 1927 about 20,000,000 gallons of benzol blend containing 0.40 to 0.60 per cent sulfur were marketed. He further reports that Germany has no sulfur specification. The writer is also aware of comprehensive tests on motor engines by a large oil company in this country that showed no bad result from a high sulfur gasoline. That the specification imposes a burden of millions of dollars per year on part of the refining industry there is no dispute. The U. S. Bureau of Standards is now making a comprehensive study of the subject.

Action of Sulfuric Acid in Treating Light Distillates

Sulfuric acid removes the most objectionable hydrocarbons the most readily. These are probably the diolefins. Its next most pronounced action is on the mono-olefins, then on the aromatics and finally on the naphthenes and paraffins. It oxidizes mercaptans to corresponding disulfides and hydrogen sulfide to sulfur. In each case sulfur dioxide is evolved. The mercaptan reaction is,

$$2\ \text{R.SH} + \text{H}_2\text{SO}_4 \rightarrow \begin{matrix}\text{RS}\\ |\\ \text{RS}\end{matrix} + \text{H}_2\text{O} + \text{H}_2\text{SO}_3$$

Thiophenes are also oxidized, although Wood found these oxidation changes to be of minor importance in refining operations, in that sulfur compounds are mainly removed due to the solvent action of the acid. Alkyl sulfides are very soluble and dialkyl ones less so, though quite soluble. He also found that sulfuric acid had no effect on the sulfoxides or sulfones except one of solubility. Dunstane[11] noted that the action of sulfuric acid in refining Persian crude oil distillate is almost purely a solvent one. The sulfur compounds are removed owing to their preferential solubility in the acid and for the most part escape oxidation.

The refining action depends upon the strength of acid used or the amount used. A highly important action consists in the removal of color and odor from distillates. Other actions consist in the formation of tarry bodies (sludge) and polymerization of low boiling oils to high boiling ones. Both are unwanted results.

Most distillates, even cracked ones, require but a moderate amount of acid to desulfurize them, but in the

*Consulting Chemical Engineer, Pittsburgh, Pa.

[1]Personal communication.
[2]NATIONAL PETROLEUM NEWS, May 8, 1928, p.71.
[3]Ind. Eng. Chem., June, 1929, p.585.
[4]Also removes some of the lighter mercaptans.
[5]The recent work of Wright (Jour. Inst. Pet. Tech., 15, 241, 1929) shows that lead sodium sulfide does so.
[6]Jour. Chem. Soc., 127, 898, 1925.
[7]Before Am. Chem. Soc., Detroit, Mich., Sept. 1927.
[8]Oil & Gas Jour., Dec. 1927, p.36.
[9]Before Am. Chem. Soc., Detroit, Mich., Sept. 1927.
[10]Ibid. and Automotive Industries, May, 1924, p.956.
[11]Royal Soc. Arts, Jan. 1928, p.57.

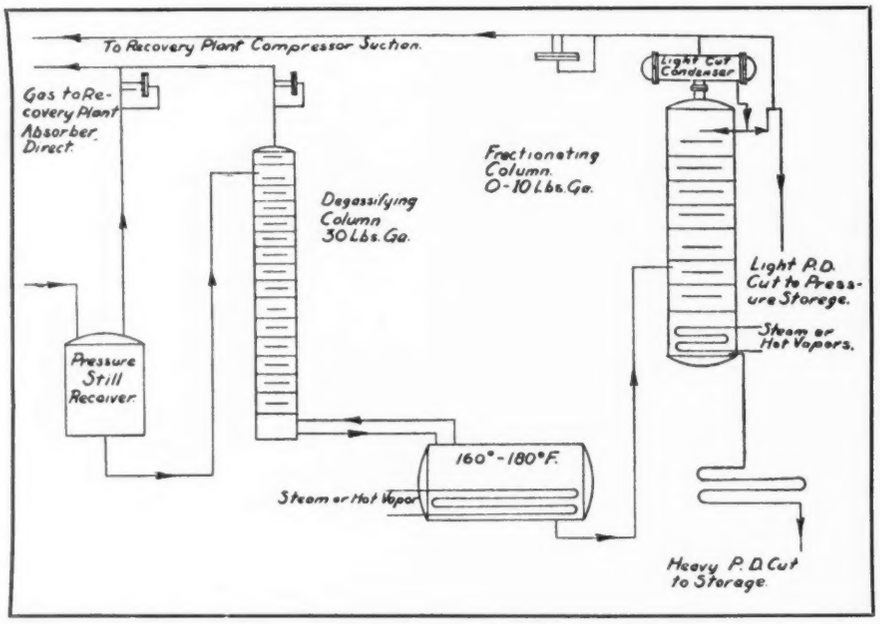
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Fig. 1—Apparatus for Fractionating and Stabilizing Pressure Distillate (Burrell-Mase Engineering Co.)

case of some sour distillates the amount of acid needed to reduce the sulfur content to 0.10 per cent is virtually prohibitive, both from the standpoint of acid consumed and from the amount of gasoline lost by polymerization. In this event sulfur can be reduced to some figure higher than 0.10 per cent, or in the case of some distillates, treated with acid at low temperatures.

Here the sulfur can be reduced and only reasonable polymerization losses sustained. This process is a patented one of the Standard Oil Co. of California, although Zaloziecki[12] stated, in 1895, that the best refining results are obtained by conducting the acid treatment at as low a temperature as possible and advised that the oil be pumped into agitators over night to cool it. Further, he advised the use of a refrigerating unit if it was deemed necessary to employ artificial refrigerants. Robinson[13] proposed to treat high sulfur kerosenes at as low a temperature as 38 F. He said that lower temperatures might entail too high a refrigerating cost.

The action of sulfuric acid is frequently supplemented by the sweetening reaction. Here sulfur instead of being removed is largely converted to another form in which it is odorless and does not react with the doctor test. Or sulfuric acid is entirely omitted in the case of many straight run distillates and only the sweetening process employed. Some straight run distillates are not treated at all.

The Sweetening Reaction

In the lead plumbite sweetening method, little sulfur is removed from the oil; it is simply converted into another form, where it can cause just as much corrosion in a motor car as in its original state. But in the new form it does not react with doctor solution and the mercaptan odor is removed.

The oil is called sweet. Theoretically no sulfur is removed at all by plumbite solution, but actually, according to Wright,[14] the lead sulfide acts as an absorbing agent and removes a small quantity of sulfur by virtue of this fact.

Further, conversion from mercaptans to disulfides raises the boiling point from 60 to 120 F., hence on redistillation the latter compounds tend to be left in the steam still bottoms by reason of this increase in boiling point. Wright found that an oil containing 0.075 per cent of sulfur was reduced to 0.045 per cent by the doctor treatment, and in another case from 0.14 to 0.10 per cent.

Wood, Loewy and Faragher,[15] and Wendt and Diggs,[16] working independently, determined the mechanism of the reaction. The reactions which occur are an extension of the general reaction shown by Holmberg.[17] Sodium plumbite removes mercaptans and hydrogen sulfide. These are the only two sulfur compounds that are sour to the doctor test. Sodium plumbite reacts with a mercaptan to form a golden precipitate, thus:

$$\begin{matrix} C_2H_5\ SH \\ | \\ C_2H_5\ SH \end{matrix} + Na_2\ PbO_2 = \begin{matrix} C_2H_5S \\ \\ C_2H_5S \end{matrix} \!\!> Pb + 2NaOH$$

Next lead sulfide is formed due to a gradual oxidation by means of sulfur dissolved in the oil. Flowers of sulfur added to the oil accelerates the reaction. The reaction is,

$$\begin{matrix} C_2H_5S \\ \\ C_2H_5S \end{matrix} \!\!> Pb + S = \begin{matrix} C_2H_5S \\ | \\ C_2H_5S \end{matrix} + Pbs$$

As the lead sulfide forms it gradually hides the yellow color until the precipitate is entirely black. The diethyl sulfide formed is soluble in the oil and does not react with sodium plumbite and hence gives no doctor test. Pressure distillates contain enough free sulfur so that none need be added, as in straight run distillates, to complete the reaction. The addition of a slight excess of sulfur will give a gasoline that will react to the copper strip test.

Lead sulfide itself is a good sweetener and has long been known as such. Morrell and Faragher[18] find that it enters into chemical reaction with oxygen and that the latter and caustic soda are necessary for it to have a sweetening reaction, thus,

$$PbS + 4NaOH + 2O_2 \rightarrow Na_2PbO_2 + Na_2SO_4 + 2H_2O$$

Rowsey and Whitehurst[19] treat pressure distillate with doctor solution and

[12]Chem. Ztg., 19, 78, 1895.
[13]U.S.P. 910,584, Jan. 1909

[14]Jour. Inst. Pet. Tech., 15, 241, 1929.
[15]Ind. Eng. Chem., Nov. 1924.
[16]Ind. Eng. Chem., Nov. 1924.
[17]Ann. 81, 359, 1908.
[18]Ind. Eng. Chem., July, 1926.
[19]Oil & Gas Jour., Dec. 1927, p.250.

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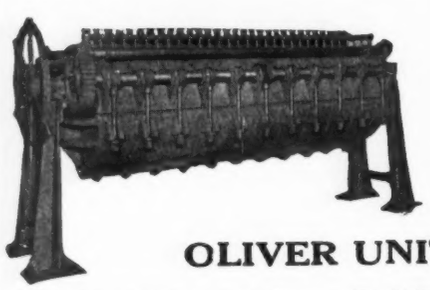

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1930

Station personnel and appearance important Feb. 19, p. 21

Firestone Tire plans basement storage Feb. 12, p. 29

Outposts get business for one-stops Feb. 5, p. 91

Bargain basement attracts customers to one-stop Feb. 5, p. 36

Canadian one-stops push service of one department Jan. 22, p. 83

1929

Attendants should know regular patrons' needs Dec. 18, p. 29

Uniforms for station attendants Dec. 11, p. 100

Pittsburgh one-stops have broader merchandising Dec. 4, p. 99

Tire dealers to develop one-stops individually Nov. 20, p. 29

Seiberling says tire retailing not rosy Nov. 20, p. 30

22 greasing jobs done daily at small town super station Nov. 13, p. 24

Servicing cars in club atmosphere at super station Nov. 13, p. 77

Pierce opens first hotel for motorists Oct. 30, p. 57

Drops dual control of one-stop stations Sept. 4, p. 36

Combination super service stations at airports Aug. 21, p. 33

Super station links beauty with quick service Aug. 14, p. 96

Beauty shop in super station to draw women? Aug. 14, p. 106

Two Pierce terminal stations open Aug. 7, p. 35

Time, effort saved by cars moving on straight line Aug. 7, p. 92

Gasoline best part of sales at tire dealer's super station July 31, p. 75

Sinclair one-stop stations to cover two acres in Cleveland July 24, p. 30

One-stop stations bring new selling methods July 10, p. 30

Selects station lots like cigar stores July 10, p. 88

Danger of overbuilding one-stops July 3, p. 29

Probable factors in one-stop stations June 26, p. 27

Oil marketers, not tire dealers, to run one-stops June 19, p. 35

Careful survey necessary to build one-stops June 12, p. 88

Super station merchandising June 5, p. 94

Tire companies help dealers build one-stop stations May 15, p. 30

Station location most important May 15, p. 113

Oil companies may aid tire dealers in building super stations May 1, p. 40-a

Dance, play bridge at Lima's new super station Apr. 3, p. 82

New station washes cars in 15 minutes March 20, p. 118

De luxe shopping centers in California March 13, p. 95

Sinclair to wash cars; buys Gillespie laundries Feb. 20, p. 31

Builds hotels to service stations Feb. 13, p. 90

Speed, thoroness in new super station Feb. 13, p. 96

'Phone in auto at super station Feb. 6, p. 26

Inviting outdoor rest rooms at California stations Feb. 6, p. 104

Auto department stores, Chicago has world's "largest" Jan. 16, p. 91

Three tourist terminal stations to be built by Pierce Jan. 9, p. 105

1928

Pay toilets are means of financing rest rooms Nov. 14, p. 100

Gasoline stations of the future Nov. 14, p. 27

Salesmanship at service stations Oct. 17, p. 38

Super station owner calls customers by first name Oct. 17, p. 195

Auto department stores for 200 cities Oct. 3, p. 17

Opens super service station at Omaha Sept. 26, p. 64

Humble designs fireproof stations Sept. 26, p. 25

Free serve self car wash brings paid service respect Sept. 12, p. 89

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National Petroleum News

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lead sulfide. Air is added during the operation. This reduced the amount of litharge to 10 per cent of that formerly used. Wendt's and Rowsey's contention that the lead sulfide only acts as a catalyzer seems to fail in the light of Morrell's and Faragher's analysis.

Wright[20] notes that sodium sulfide is an efficient agent for removing elemental sulfur in that the sulfur is taken up by the sulfide, with the formation of sodium polysulfides, and J. C. Morrell of the Universal Oil Products Co., Chicago, Ill., informed the writer that he used the sulfide several years ago, in plant operation, to remove elementary sulfur. In some cases the removal of the sulfur was not complete. Greer[21] showed that ethyl mercaptan in gasoline was readily removed when the latter was shaken with various sulfides, including lead sulfide. Some thiophene was also removed.

Action of Caustic Soda

Caustic soda is generally used to neutralize oils after treatment with acid. It follows and is followed by water washes. It removes traces of sulfuric acid and changes the acid compounds, principally alkyl sulfuric acid and sulfonic acids, which have been formed, into sodium compounds which are dissolved in the alkali and thus removed or are dissolved out by water. Any naphthenic acids remaining are also removed.

Frequently distillates are given an early treatment with caustic soda, either in the condenser or immediately after condensation. Thus hydrogen sulfide is early removed. which otherwise undergoes some oxidation to free sulfur, which is corrosive. Some of the lower molecular weight mercaptans are also removed, and phenols and naphthenic acids. Sometimes crude oils are distilled with caustic soda.

Steam Distillation of Light Distillates

When light distillates are rerun to fractionate the oil into gasoline and bottoms the temperature is kept as low as possible to avoid chemical changes. These may render the gasoline both sour and unstable, due probably to the formation at elevated temperatures of hydrogen sulfide and possibly some mercaptans from the sulfides, disulfides and other sulfur compounds in the cracked distillate. Dialkyl esters of sulfuric acid formed during acid treatment are decomposed on heating, forming tarry substances as well as sulfur dioxide. Polymerization of olefins and other unsaturates and formation of tars are also promoted under high still temperatures.

Action of Sodium and Calcium Hypochlorite

Sodium or calcium hypochlorite may be used as a sweetener only or

[20]Jour. Inst. Pet. Tech., 15, 241, 1929.
[21]Ind. Eng. Chem. 21, 1032, 1929.

it may actually remove sulfur if it is reactive enough. As a sweetening agent, the reaction is similar to sulfur on the mercaptans, thus,

$$\begin{matrix} C_2H_5 \\ | \\ C_2H_5 \end{matrix} + O = \begin{matrix} C_2H_5S \\ | \\ C_2H_5S \end{matrix} + H_2O$$

The disulfide goes back into solution and will not react with doctor solution and the oil is called sweet.

With more reactive hypochlorite solutions sulfur in distillates is reduced. Thiophene and free sulfur are not attacked but hydrogen sulfide is oxidized to sulfur and traces of sulfuric acid. Organic sulfides are oxidized to sulfones and disulfides to acidic products. An excess of hypochlorite is harmful for it oxidizes other compounds to give undesirable colors.

A. E. Dunstan, who adapted hypochlorites to petroleum refining, advises that the proper control is all important. He notes that in refining Persian oils losses of 5 per cent with sulfuric acid have been reduced to 0.5 per cent. Sludge is virtually eliminated in that the spent dilute chlorides can easily be disposed of.

Straight run and natural gasolines are refined in considerable quantity with hypochlorites (calcium or sodium) but not cracked distillates unless possibly in conjunction with sulfuric acid to give the desired color, else side reactions occur to give chlorinated products. But the writer knows of no case where this is done.

Treating with Hot Fullers Earth (T. T. Gray Process)

Some cracked distillates are treated with hot fullers earth—made hot by the hot distillate itself. The action is one of polymerization and thus removal of diolefins and other gum forming constituents. Odor of the treated product is good and color is stable. This is true for some distillates, but cracked distillates from the drastic heating of some heavy stocks do not readily respond; at least in many cases, so that no advantage appears over acid treating and rerunning.

Sometimes the use of hot clay eliminates acid treatment; again it is combined with a moderate acid treat. At one plant the cracked distillate is washed with caustic soda, settled, water washed, treated with 2 pounds of acid per barrel, settled, again water washed, sweetened with plumbite, fire distilled and the vapors passed through the clay towers, after which caustic soda and sulfur are added.

At another plant hot pressure distillate from the dephlegmator of a Cross cracking still is fractionated in a bubble tower, then passed through a clay tower, then sweetened and marketed. An almost unbelievable amount of gasoline is treated per ton of clay. At ancther plant pressure distillate from the clay tower is treated with soda ash to remove sul-

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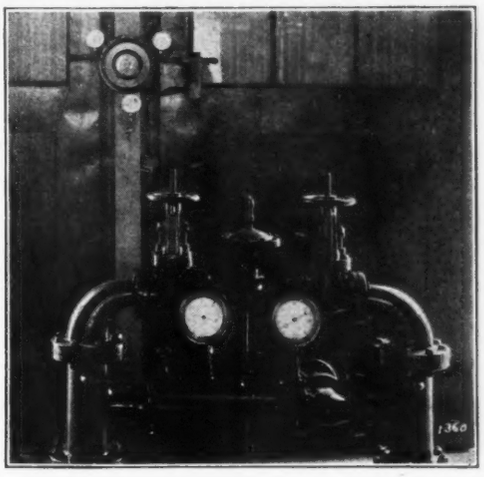

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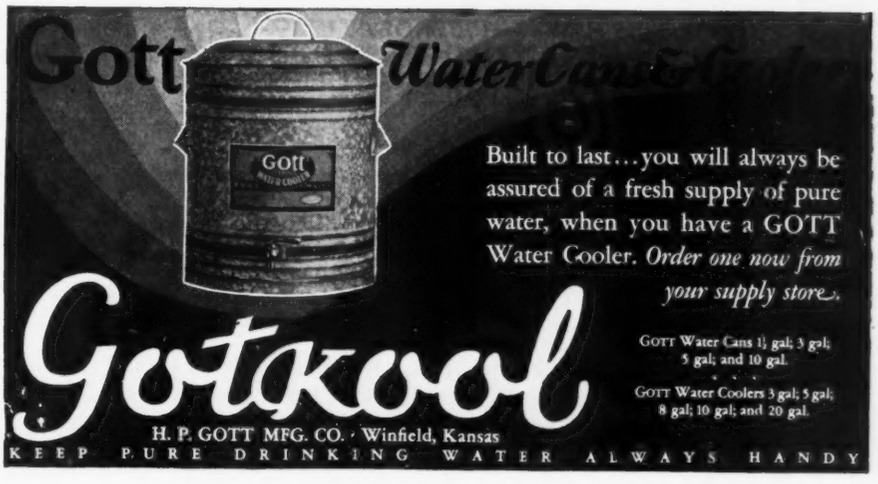
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fur dioxide, else a stable color does not result.

The Use of Other Reagents

Reagents other than sulfuric acid, plumbite, hot fullers earth, hypochlorite solutions, caustic soda and sulfur are used to refine light distillates, although not in any great quantity. These include acid treated clay, copper oxide, straight clay, impregnated clays, cupric ammonium hydroxide, cuprous chloride, silica gel, soap solutions, bauxite, phosphoric acid, and sodium sulfide. These substances are all used on a practical scale here and there in this country or in England.

Dunstan's[22] experience in treating kerosene with bauxite is interesting. He finds that colored compounds are removed and then sulfur compounds. Certain of the latter are absorbed, and others, including the mercaptans, are oxidized by means of the air held in the bauxite.

Kerosene moving d o w n w a r d s through the bauxite loses suspended colored compounds in the top layer by filtration, then more color in a lower layer by adsorption. Here the bauxite is not covered up by suspended compounds and adsorption comes into play. Removal of sulfur begins after most of the color is gone, in the lower bauxite layers. Polymerization of unsaturated compounds takes place with the formation of strongly colored gums. These are washed out of the filter and left behind in the still on subsequent distillation.

Rowsey and Whitehurst use a saturated doctor solution to which is added some of the sodium sulfide formed by washing the gasoline with caustic soda. Air is introduced during the treatment. This method has already been discussed.

At another refinery impregnated clays are used for desulfurizing and treating distillates. Acid is first used, and then the oil is filtered through the clay, then given soda and water washes, then treated with clay again, and finally with litharge and lime. Some sulfur is added.

Phosphoric acid is said to be used by a California refinery, and hydrofluoric acid has been used experimentally with good results. That different refiners use different strengths of sulfuric acid, or dilute reclaimed acid, is well known; sometimes a number of washes are given with dilute acid instead of one wash with a strong acid.

Mention should be made of a growing and important practice, whereby the top cut, say 5 to 30 per cent of the pressure distillate is fractionated out of the latter and not acid treated. (See Fig. 1). Color, gum and sulfur constituents concentrate themselves to some extent in the heavy fractions, hence these do not need an acid treat, in most cases at least. Acid

[22]Before Roy. Soc. Arts, Jan. 1929.

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treating is reduced, light end losses are eliminated, and pumping difficulties (in hot weather) disappear. An arrangement proposed by the Burrell-Mase Engineering Co. for thus handling a pressure distillate is shown at Fig. 1. The light top cut is stored in pressure tanks of moderate pressure to avoid evaporation losses.

Aluminum chloride destroys sulfur compounds better than most reagents. However, Dunstan[23] finds that a sticky resinous substance adheres to the still when the chloride is used, involving loss of the material. But now that McAfee has cheapened the cost of making aluminum chloride this objection may possibly be overcome.

Reclaiming Litharge

Litharge is usually recovered by blowing with air in the presence of caustic soda, thus,

$$PbS + 4NaOH + 2O_2 = Na_2 PbO_2 + Na_2 SO_4$$

Elevating the temperature to 200 F. or higher, speeds up the reaction. This is a very old method. E. Sapp, now superintendent of the Derby Oil Co., Wichita, Kan., informed the writer that he practiced it as long ago as 1910, at the Indian Refining Co., at Lawrenceville, Ind. Despite this fact a patent was recently taken out on it.

Kinsel[24] filters off the lead sulfide and converts it into lead sulfate with dilute sludge acid, then washes the sulfate, and mixes it with caustic soda:

$$PbS + H_2SO_4 = PbSO_4 + H_2S$$
$$PbSO_4 + 4NaOH = Na_2 PbO_4 + 2H_2O$$

Ayres[25] notes that regenerated sodium plumbite is a better sweetener than the fresh material.

Good[26] mentions a recovery process in which the sludge is settled, oil appearing as a top layer, caustic soda as an intermediate one, and lead sulfide as the lowest layer. The latter is washed and pumped to a lead lined tank where it is mixed with hydrochloric acid and chlorine so that there results a mixture of lead chloride, lead oxide, hydrochloric acid and sulfur. This mixture settles into sulfur, acid plus the chloride, and solid layers, the latter being litharge, some sulfur, and traces of the chloride.

[23]Roy. Soc. Arts, Jan. 1928, p.82.

[24]Before Am. Chem. Soc., Richmond, Va., Sept. 1926.

[25]Oil & Gas Jour., Oct. 3, 1929, p.201.

[26]Ibid. Oct. 24, 1929, p.46.

NEW PATENTS

Prepared by R. E. Burnham, patent and trademark attorney, Continental Trust Building, Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

February 4, 1930

PRODUCTION

Drill-bit agitator—John Bishop, Long Beach, Cal. Filed Oct. 1, 1928. No. 1,745,351.

Rotary slip—Harry R. Decker, Houston, Tex., assignor to Decker Oil Tool Co., same place. Filed Dec. 18, 1923. No. 1,745,409.

Rotary pump mechanism—Mahlon E. Layne, Houston, Tex., assignor to Layne & Bowler Corporation, Los Angeles, Cal. Filed May 4, 1925. No. 1,745,547.

Pumping apparatus—John A. Yerkes, Long Beach, Cal. Filed Mar. 6, 1926. No. 1,745,566.

Means for operating well-boring drills—Andrew B. Cross and William H. Frazier, Denver, Colo. Filed Apr. 26, 1928. No. 1,745,567.

Combined packer and tubing support—Ellsworth Gray and Robert A. Mueller, Houston, Tex., assignors to Gray Tool Co., same place. Filed July 5, 1927. No. 1,745,572.

Expanding roller underreamer—James J. Santiago, Los Angeles, Cal. Filed Oct. 19, 1927. No. 1,745,650.

Supporting link for well-working tools—Frank E. Crotto, Tulsa, Okla., assignor to Western Supply Co., same place. Filed Jan. 17, 1927. No. 1,745,742.

Well-testing tool—William O. Daniels, Loredo, Tex. Filed Feb. 3, 1928. No. 1,745,833.

Automatic cat-head jerk-line control—Walter W. Foster, Wichita Falls, Tex. Filed Feb. 4, 1929. No. 1,745,988.

Swivel—Ellsworth Gray, Houston, Tex., assignor to Gray Tool Co., same place. Filed July 30, 1927. No. 1,746,036.

Drill-pipe—John C. Stokes, Houston, Tex. Filed Aug. 1, 1925. No. 1,746,132.

MISCELLANEOUS

Overflow switch control (for gasoline dispensers)—Hans A. Petersen, Marshalltown, Iowa. Filed Dec. 23, 1927. No. 1,745,639.

Liquid-dispensing attachment—Charles E. Baker, Newton, Iowa. Filed Aug. 10, 1927. No. 1,745,656.

Liquid outlet for tanks—Jap P. Walker, Tulsa, Okla. Filed Mar. 19, 1928. No. 1,745,731.

Liquid-pump arrangement—Gustav A. Kramer, Concord, Cal., assignor to Shell Development Co., San Francisco, Cal. Filed Mar. 31, 1926. No. 1,745,800.

Flexible mechanical pick—Felix J. Martinez, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Mar. 30, 1926. No. 1,745,804.

Measuring distributor for liquids—Joseph J. M. Gueux, Paris, France. Filed Dec. 26, 1922. No. 1,745,896.

February 11, 1930

REFINING

Apparatus for refining oil—George H. Taber, Jr., Rye, N. Y., assignor to Sinclair Refining Co., New York, N. Y. Filed Jan. 14, 1925. No. 1,746,915.

Manufacture of lubricating oil—George H. Taber, Jr., Rye, N. Y., assignor to Sinclair Refining Co., New York, N. Y. Filed Jan. 14, 1925. No. 1,746,916.

Process and product for treating emulsions of mineral oils—William B. Lerch, Bartlesville, Okla. Filed May 31, 1928. No. 1,747,119.

PRODUCTION

Well-drilling bit—William W. Hartman, Los Angeles, Cal. Filed Sept. 30, 1925. No. 1,746,423.

Drill-bit—Shelley G. Woodruff, Lynwood, and Edward D. Storts, Long Beach, Cal. Filed July 8, 1929. No. 1,746,455.

Deflection-indicator for oil wells—Vladimir B Sounitza, Pasadena, Cal. Filed July 23, 1927. No. 1,746,562.

Oil-level-measuring device for oil wells—Vladimir B. Sounitza, Pasadena, Cal. Filed July 23, 1927. No. 1,746,616.

Underreamer—Hurley F. Clement, Long Beach, Cal. Filed Mar. 6, 1928. No. 1,746,694.

Wire-line socket—Delbert Baker, Tulsa, Okla. Filed Apr. 20, 1929. No. 1,746,759.

Well-drill bit—George Gartling, Los Angeles, Cal. Filed Apr. 24, 1924. No. 1,746,933.

Jar—Walter L. Church and William L. Pearce, Houston, Tex. Filed Apr. 18, 1927. No. 1,747,020.

Pump attachment—Martin R. Donnallan, Long Beach, Cal. Filed Apr. 25, 1928. No. 1,747,056.

MISCELLANEOUS

Liquid-dispensing apparatus—John B. Davis, Springfield, Mass., assignor to Gilbert & Barker Mfg. Co., West Springfield, Mass. Filed Sept. 14, 1927. No. 1,746,382.

Process for the production of paraffin-hydrocarbons with more than one carbon atom—Franz Fischer and Hans Tropsch, Mulheim-on-the-Ruhr, Germany. Filed Apr. 1, 1926. No. 1,746,464.

Air-trap for pipe-lines—Abner D. Lindsey, Ranger, Tex. Filed Oct. 28, 1927. No. 1,746,785.

February 18, 1930

REFINING

Method of purifying oil—Lee H. Clark, Rosemont, Pa., assignor to Sharpless Specialty Co., Philadelphia, Pa. Filed July 11, 1925. No. 1,747,161.

Art of cracking hydrocarbon oils—Eugene C. Herthel and Thomas deC. Tifft, Chicago, Ill., assignors to Sinclair Refining Co., New York, N. Y. Filed Aug. 12, 1927. No. 1,747,437.

Decolorizing and color-stabilizing hydrocarbon oil—Vanderveer Vorhees, Whiting, Ind., assignor to Standard Oil Co. of Indiana. Filed Oct. 31, 1927. No. 1,747,806.

Art of treating emulsions—Warren T. Reddish, Cincinnati, Ohio, assignor to Kontol Co., Dallas, Tex. Filed Sept. 27, 1928. No. 1,747,987.

PRODUCTION

Bearing for roller earth-boring drills—Floyd L. Scott, Houston, Tex., assignor to Hughes Tool Co., same place. Filed Nov. 3, 1925. No. 1,747,394.

Earth-boring drill—Floyd L. Scott, Houston, Tex., assignor to Hughes Tool Co., same place. Filed June 27, 1927. No. 1,747,395.

Well-cleaner—Posey R. Short, Tulsa, Okla. Filed Apr. 19, 1928. No. 1,747,398.

Casing-cutter—James A. Kammerdiner, Los Angeles, Cal. Filed Dec. 21, 1925. No. 1,747,513.

Automatic control for well-flowing devices—Alexander Boynton, San Antonio, Tex. Filed Nov. 15, 1927. No. 1,747,570.

Automatic well-flowing device—Alexander Boynton, San Antonio, Tex. Filed Nov. 21, 1927. No. 1,747,571.

Automatic well-flowing device—Alexander Boynton, San Antonio, Tex. Filed Dec. 10, 1927. No. 1,747,572.

Driven-well tool—Ludwig Steiner, Berlin, and Victor Gutmann, Nuremberg, Germany. Filed June 30, 1926. No. 1,747,606.

Casing-head—Joseph R. Mahan and Dallas E. Wright, Toledo, Ohio, assignors to National Supply Co., same place. Filed Sept. 29, 1928. No. 1,747,782.

Bit—Earl A. Reed, Wichita, Kans. Filed Mar. 22, 1927. No. 1,747,907.

Rotary drill-bit—William V. Seifert, Denver, Colo., assignor to Universal Rotary Bit Co. Filed Aug. 11, 1923. No. 1,747,908.

Rotary sectional bit—William V. Seifert, Denver, Colo., assignor to Universal Rotary Bit Co. Filed May 29, 1922. No. 1,747,909.

Guiding, floating, and cementing device for well-casings—Reuben C. Baker, Coalinga, Cal. Filed Nov. 23, 1927. No. 1,748,007.

MISCELLANEOUS

Interlocking and signal mechanism for liquid-dispensers—Lee R. Hartley, Fort Wayne, Ind. assignor to S. F. Bowser & Co., same place. Filed Apr. 17, 1926. No. 1,747,510.

Lubricating-oil-dispensing apparatus—Ernest J. Sweetland, Hazleton, Pa. Filed Jan. 7, 1925. No. 1,747,608.

Liquid vending and measuring device—Edward L. Hubbard, Piedmont, Cal. Filed Mar. 29, 1928. No. 1,747,633.

Natural-gas liquefaction—Horace Dumars, New Suffolk, N. Y., assignor to Bowen-Dumars Power Corporation, New York, N. Y. Filed Sept. 8, 1922. No. 1,747,761.

Automatic switcher device for oil-storage tanks—William S. Bradley, Thrift, Tex., assignor to Gulf Production Co., Houston, Tex. Filed Oct. 3, 1927. No. 1,747,814.

ADVERTISING PAGES REMOVED

SALESMANSHIP—

Training the Operator to Make Service Stations Profitable

By R. H. Thomas

BEFORE we may hope to develop salesmanship to meet modern conditions at service stations, we must differentiate between conditions as they were and conditions as they are.

A few years ago we had filling stations—comparatively few in number—many of them poorly located and limited in modern conveniences. Gasoline and motor oils were the products dispensed. Free air and crankcase drain pits were few. Rotary lifts were unheard of, and the auto laundry, greasing, tire repair, brake adjusting, wheel aligning, battery, ignition, generator and starter service units, etc., were all tucked away in the dream world of future possibilities.

Owing to the limited number of stations, however, and the ever increasing use of cars and trucks, these stations, for a time were sought out—and enjoyed a splendid gallonage and satisfactory profits—notwithstanding their lack of adequate facilities and properly trained personnel.

As a result of flush production, political agitation, and general observation, thousands of men with but limited capital thought they saw a chance to get rich quick by getting into the fillin' station business. Sites of questionable value, but which seemed suitable for filling station purposes were listed by realtors who were adept at painting pictures of profit for gullible prospects who might be induced to embark upon the sea of oil—via "This dandy corner for a Fillin' Station."

Sites boomed while prices soared, and individuals of limited means and experience were not the only ones who paid dearly for sites which soon diminished in value as the new era was ushered in. However, a great many individuals, and companies too, are hanging desperately to the old outlay and blaming everybody and everything but themselves for their present situation.

Recently I saw a report covering a chain of stations—some of them were service stations; but, most of them were fillin' stations. In substance, this is what it told me:

Total gasoline sales, in barrels, for past 12 months:

47 per cent of all stations sold less than 2000 barrels (some, far from 1000).

27 per cent of all stations sold between 2000 and 3000 barrels.

R. H. THOMAS is the author of the book, "Merchandising of Petroleum Products," which is for sale by NATIONAL PETROLEUM NEWS, price $2.50. This article, dealing with the sales training of service station operators, is the tenth of a series on oil salesmanship which have been published by NATIONAL PETROLEUM NEWS the last few months. The articles supplement the material contained in Mr. Thomas's book, which is along the line of practical information for men engaged in the marketing branch of our industry.

15 per cent of all stations sold between 3000 and 4000 barrels.

8 per cent of all stations sold between 4000 and 5000 barrels.

3 per cent of all stations sold more than 5000 barrels.

By making a comparison with the sales report for the previous year, it was rather startling to learn that of the total number operated 73 per cent showed marked losses in sales, only 15 per cent showed gains. For the remaining 12 per cent of the stations no comparison could be made because they had been erected during the current year but it was known that sales were far below estimated gallonage when appropriations were granted to build them.

Inspection of all sites, buildings and lay-outs covered by this report, gave convincing proof of superficial selection of many sites, types of stations and facilities for serving the trade. All this was, of course, entirely beyond the control of service station employes.

In too many cases it was found that constant changes of employes had taken place without bettering the situation. Practically every change had aggravated conditions by accelerating the loss in volume, profits and good-will. It proved, too, that losses in sales attributed to operators, who had been selected and presumably trained by men who were supposed to know what they were doing, were chargeable to other causes.

That the selection of sites is receiving more attention than ever before, as well as the types of construction and facilities commensurate with the requirements of the community, etc., cannot be disputed any more than the imperative need for this attention.

An analysis of present conditions surely impels the thought that the day of the "fillin' station" is past and that the era of service stations is here with its ever increasing demand for convenience, superior facilities, trained personnel and constantly improved merchandise.

Insofar as improved merchandise is concerned, it would seem that the present is in step with the great strides made in the manufacture of automotive equipment and that an intelligent effort is being made to provide convenient and adequate facilities for serving the trade. However, much remains to be accomplished by way of sales training.

In view of the distances between stations and the difficulty of getting the men together in groups for the purpose of instruction and education, for injecting enthusiasm and the good fellowship which always pervades a successfully conducted sales meeting, for fostering and keeping alive esprit de corps, it is no wonder that sales records at stations are not always what might be desired. The best service station supervisor alive cannot accomplish desired results by dropping in on the men, while they are on duty, with the intention of instructing and enthusing them in their work because of the constant interruptions that occur.

While it is true that it is better to have a second class location with

first class men than a first class location with a bunch of disloyal, inattentive, discourteous men, it must be borne in mind that there is no excuse for the employment of such men or for lack of proper training and a close check-up on all men in the service.

Training of men should be conducted in groups and pursued in such a manner as to develop proper interest and enthusiasm for the work.

Some of the finest meetings of this nature I have ever had the privilege of attending, had been carefully prearranged. A dinner, paid for by the company, was followed by a lecture on "The Oil Industry," the subject for the first meeting. Following this, 30 minutes was devoted to a discussion of company history, policy and personnel. No criticisms were handed out and nothing was said about sales that night.

A fine spirit was developed, and in conclusion the men were told when the next meeting would be held and were asked to write out, during the week, any questions pertaining to the business they might like to have answered. The men were not to sign their names to these questions and were asked to deposit them in a box at the entrance to the hall when they came to the next meeting. As a result, no one hesitated to write out his questions—questions which would never have been asked in open meeting. This thoughtfulness enabled the instructors to work with more intelligence in bringing about desired results.

At the second meeting held a week later, "Gasoline" was the subject. All the desirable qualities of good motor fuel were thoroughly discussed, after which there was a distillation of the company's own gasoline which had been secured by three of the service station boys just before the meeting convened. By use of the distillation machine, it was proven, in a most forceful way, that the company's product met the requirements of a high grade motor fuel in every way.

At the third meeting, "Motor Oil" was the subject. Charts were used to show the internal operation of the gasoline engine as well as possible mechanical imperfections which might lead to condemnation of fuel or motor oil. After this illustrated lecture, questions were asked and satisfactorily answered.

Immediately following this, a small reclaiming unit was set up and a sample of the company's motor oil which had been taken from one of the service station operator's car—and which had been in use for more than 1200 miles—was reclaimed right before their eyes. After the water and gasoline had been distilled off and the remaining crank-case oil had been carefully filtered, one could not tell the difference between the reclaimed oil and a sample of the new, unused oil, taken from a lithographed sealed can.

This demonstration had a marked effect upon the men as they gained a new conception of quality. They were so enthusiastic over what they had heard and seen and believed that they left that meeting that night like a bunch of marines headed for a battle.

The intelligent sales efforts put forth by the men as a result of the fine spirit engendered, the valuable background laid, and the convincing

R. H. Thomas

sales talks and demonstrations at these meetings, were the cause for much gratification on the part of company officials as they perused reports of continuously increasing sales at service stations.

At no time in history have companies been in better position to conduct educational campaigns among their employes than today. Research and modern refining equipment have brought the manufactured products to a high state of perfection while the arts of personal salesmanship and advertising are well known and should be made use of in a very definite way by all members of marketing organizations. Irrespective of whether or not the refiner disposes of his own products to consumers direct, it will pay him well to see to the sales education of those handling his merchandise.

For several months prior to August, 1929, I observed, carefully, sales activities at a certain service station that handled a good grade of gasoline and motor oils. The site was ideal but business was gradually slipping away because of the opening of other stations nearby.

By August, gallonage had dwindled to such an extent that the inevitable occurred, the station was sold as a lemon. The new owner took that same station, cleaned it up, applied modern sales methods, and the gasoline gallonage crept up to approximately 20,000 gallons a month from 4500 in less than five months. The sales of lubricants and specialties increased correspondingly.

How was it done? By compulsory education, thorough training and systematic supervision of the operators. First, they were compelled to study the literature put out by the companies that supplied what was handled at the station and they had to pass an examination on the basis of what that literature contained. Second, they were taught how to sell, and they were obliged to sell one another right in the presence of the boss. Third, when they knew their products and how to sell them they were assigned a definite number of car owners, trucking concerns, delivery truck owners, etc., to call on daily. A specific report had to be made on each prospect to the owner of the station.

This did not end it. Full use of the telephone and of the mail was made in following up. Common sense and perseverance brought back to life, in less than five months, a station that was as dead as King Tut.

This is no day for storekeepers or "fillin' stations." We must be salesmen. The fundamentals of salesmanship are grounded in knowledge, and the application of that knowledge through proper training and supervision is soon reflected in added gallonage and profit. Salesmanship calls for originality—a new way to impress prospects and awaken desire for ownership.

The service station operator who uses his imagination to check up on each product, to find out what there is about it that will appeal to the buying motives, is certainly on the right track.

One man worked out what he termed an appeal to the five senses which follows:

What is there to see? The sample will indicate the color of the oil and corroborate my statement that it has been thoroughly refined. When I hold up to the light my sample and ask the question, "Isn't that about the clearest, cleanest motor oil you ever looked at? Makes one think of pure, winter-strained honey, doesn't it?" don't think the customer is not impressed because seeing is believing. If I am trying to sell a tourist a can of oil to take along, I point out the can design, the rigid construction, its convenience for packing, adjustable spout for pouring, etc. In other words, I make the value and the convenience of having it stand out. It can be done, but not without a little time and thought.

What is there to hear? Perhaps no

COL-TEX

"fills the bill"

Col-Tex Ethyl Gasoline—refined at Colorado, Texas, from aromatic base crude, rich in natural anti-knock value, low initial and end point, made perfect by the addition of Ethyl fluid—a matchless high test and anti-knock gasoline all in one—the final answer to the requirements of the modern motor—a genuine premium gasoline.

Col-Tex Regular Gasoline—refined at Colorado, Texas, through the most modern refining and cracking facilities designed to produce a volatile anti-knock product—better than U. S. Motor, high in natural anti-knock qualities, water-white, doctor and corrosion test—the ideal economical, all-season, all-purpose gasoline—sells for regular prices.

"Col-Tex" means modern gasoline, refined under the most improved methods to meet 1930 motor requirements. Gasoline to keep pace with present day motor cars, must be constantly improved in volatility and anti-knock value.

Write for particulars on our marginal contract covering these Col-Tex products, together with advertising and sales-building plan.

SPECIAL: Col-Tex Furnace Oil—35/6 gravity, taking the gas oil rate; light straw color, low flash and end point, zero cold test, low sulphur, fully treated, doctor sweet odor, available for spot or contract shipments.

COL-TEX REFINING COMPANY
ANDERSON-PRICHARD OIL CORPORATION
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sound when I shake the can; but the absence of it, and the remark, "Listen! (while holding can in both hands and above my right shoulder and shaking it) the wonderful cushioning properties of this oil will cause your motor to operate like a whisper," has its effect too.

What is there to feel? I get the can into his hands as soon as possible so he may feel the weight of the can, the body of the oil, the right of possession—he has it in his own hands right now—and he's more apt to keep it and pay for it than he would if it was not in his possession.

What is there to smell? Nothing! Why not capitalize on that fact? "No foreign substance has been added to this pure mineral oil to give it body or detract from its fine lubrication properties."

What is there to taste? "Get a taste of actual performance with that oil in the crankcase—convincing proof of its true worth."

A good sales presentation should be prepared with pains-taking care to cover each and every product or service available at the modern service station; and each man should be checked up as to the manner in which he presents his proposition. The *way* a thing is said and the *manner of expression;* the use of the voice; the sparkle or murkiness of the eye, either accelerates or impedes sales progress during the presentation.

When one is preparing a presentation on motor oil, for instance, he must ask himself, "How does it function?" "What does it do?" "Does it approach perfect lubrication because it maintains correct body under operating temperatures, permitting pistons, rings, and all bearing surfaces to float on oil without metallic contact of frictional surfaces?" If so, there is assurance of good piston ring action and that maximum power will be transmitted for useful purposes as a result of good compression. The oil will not cake in the ring grooves and its use will avoid excessive dilution of the supply in the crankcase.

Who makes it? If its an old company with a reputation for accomplishment behind it, say so. If it's a new company comprised of young blood who saw the need for something new and had the courage to strike out for themselves, to "buck the line" with a product of superior quality, don't apologize—say so with pride, enthusiasm, and conviction.

How is it made? The company who supplies it will tell you. Recently, an Independent oil company showed me a complete course on motor oils they had had prepared for them by a company of sales experts and a staff of chemical and technical engineers.

These expert sales, chemical and technical engineers had access to the refining plant and the well fitted out laboratories while they were on the job perfecting the course for the sales staff. These men were on the job for weeks, and step by step each outstanding quality was discovered and put in practical and understandable form.

When all was ready, the sales force was taught the science of salesmanship in so far as it applied to their business; and the practical method of presenting their proposition was demonstrated by trained experts who could explain buying motives and who had the ability to arouse them.

The ordinary salesman, even though he has had considerable success in the field, is not competent to teach a force of men. Too many companies have tried that and that's why a greater measure of success has not crowned their efforts. In order to attain the fullest measure of success, salesmanship must be taught by competent teachers to carefully selected, energetic, ambitious men, who have the necessary imagination to enlarge upon the education and special training given.

Today we have too many marginal stations—stations doing a limited gallonage and whose pronounced tendencies are toward limited or no profits. From what I have observed, and what I know, I am sure that the future success of service stations will depend largely upon those responsible for selecting proper sites, layout and construction, and the outstanding responsibility in connection with the selection and training of man-power.

Sometimes I wonder if some companies are not spending more for housing their merchandise than to move them. Other companies are right on their toes and are intelligently going after the business. I just read an article appearing in one of the largest dailies on the Pacific coast in which mention was made of the fact that one oil company had just signed a new three-year contract with their radio announcer at $85,000 a year. He is to continue with this ingenious device in winning good-will and business from the public.

This same company is spending hundreds of thousands of dollars in the training of its personnel. A few years ago this company was practically unknown in the United States, but I have seen this company's business grow by leaps and bounds within the past year and a half—and the end is not yet.

It would seem that those who do not avail themselves of the opportunity at hand for developing salesmanship to meet modern conditions in marketing circles are doomed for a sad awakening.

ADVERTISING PAGES REMOVED

Free Car Washing Space Provided For Oil Company Patrons

By E. L. Barringer
N. P. N. STAFF WRITER

ELGIN, Ill.

REGULAR customers at a chain of service stations of Herman Bunge here are provided with free space where they may wash their cars. Enclosed space in the lubrication building at a station, in a residential district, has been set aside for car washing.

The idea was put into effect about two years ago by the late Mr. Bunge. To prevent abuse of the privilege customers are provided identification cards giving their name and the date issued. The station attendant punches the card when a purchase is made. There are no requirements as to the amount of gasoline or motor oil bought to obtain use of the room. Car owners who patronize the station frequently, and are known to the attendants, do not bother with the card.

While the bulk of cars washed at the station are in the lower price field, a sizable number are medium-priced autos. Saturday afternoons and Sundays are the busy days. Customers at any stations in the city may buy at their nearest Bunge station and use the rack at the car washing station.

Hot and cold water, and a small power washer, are in the room. Patrons must provide their own sponge and chamois. These articles are sold at the station, but have a slow turnover.

The car washing department is in a building at the rear of the station lot. The building houses the oil storage room, boiler room, car washing room, and two lubrication rooms. Entrance is from the front of the station lot, and cars leave at the rear through a drive to the side street. There are overhead doors on both sides of the building.

An accompanying photograph shows the lubrication building. The door at the extreme left is to the oil storage and boiler room. The next two doors open into the car washing room.

Four autos, two on each side, can be washed in the room. The floor is drained to a sump in the center. The room is ventilated by four sheet iron pipes, about four inches in diameter, extending from the roof to about a foot above the floor. These pipes, two on each side wall, converge under the roof, and air is removed by an electric blower.

The Bunge station in Elgin, Ill. that has enclosed drives in the rear for winter indoor work

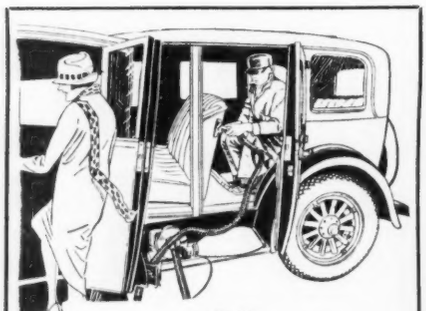
Close-up view of the enclosed drives

The fourth and fifth doors from the left in the picture are for one of the lubrication rooms, and the two doors at the right are for the other lubrication room. Each room holds four autos. In the room to the left the pits are only in the front, in the right room the pits extend clear through. None of the rooms is connected inside.

At the head of the drive in the rear are several garages rented for storage by the month to motorists in the neighborhood.

The boiler room in the basement at the left provides hot water for car washing and steam for heating purposes.

Oil is stored in this room, and

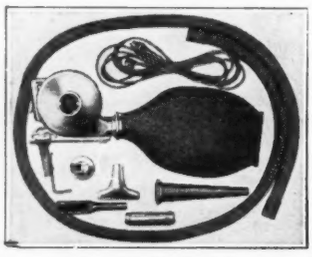


OIL JOBBERS—

Equip your stations with the Tornado Auto-Vac

Give your customers a 100 per cent vacuum cleaning job with the new TORNADO Auto-Vac Cleaner—the most powerful and efficient commercial auto cleaning device ever built. Hundreds of oil jobbers have standardized on the TORNADO — stimulates sales! Attach this advertisement to your letterhead and mail for special offer to oil jobbers. No obligation.

Breuer Electric Mfg. Co.
860 Blackhawk St., Chicago, Ill.



Clean more often— repaint less

STORAGE tanks can be kept clean and bright, and will need repainting much less frequently, if periodically cleaned the Oakite way.

An Oakite material in a safe water solution, sprayed on, or applied with brushes, speedily removes all dirt, grime, and oily deposits, leaving surfaces amazingly fresh and new-looking. No fumes—no danger—no fire hazard—and very little effort required.

Oakite materials are equally economical and effective for many other cleaning jobs. Ask us to send our nearest Service Man to explain. No obligation.

Oakite Service Men, cleaning specialists, are located in leading industrial centers of U. S. and Canada.

Manufactured only by

OAKITE PRODUCTS, INC.
42C Thames St., New York, N. Y

OAKITE
Industrial Cleaning Materials and Methods

Free space for car washing is provided regular customers in a room at the left of this building in the rear of one of the Bunge stations. The other rooms are for lubrication, pits being used

moved by air pressure to all departments on the lot. Air pressure is used also to move oil from the drums coming from the warehouse to the storage drums. There are 10 storage drums, each holding slightly more than 55 gallons. The oil is moved through a 1-inch line to the wash room, to each of the lubricating rooms, and to the station building. About 12 pounds of pressure is kept on the oil. The system was made by the S. F. Bowser & Co.

Another station in the Bunge chain in Elgin has been constructed differently from many stations. At the rear of the building is a double drive that may be used for gasoline customers in the summer, and enclosed for indoor work in the winter. The station is on the fringe of the retail business district.

Under the station roof proper are three drives and the attendant's room. Another drive passes in front of the station. The two drives in front, used for gasoline traffic at all times, are served by four pumps on an island.

The two drives in the rear of the building are enclosed with overhead doors at both ends. There is a pump island with four pumps between the drives. There are no pits on these drives, but they have been used for indoor lubrication work in inclement weather.

The Bunge stations and bulk plants have been operated by the estate since Herman Bunge died in December. Arthur Bunge, a nephew, is actively at the head of the company now.

BISMARCK, N. D., Feb. 27.—An increase of 1 cent to North Dakota's present 3 cent tax has been recommended by Gov. George F. Shafer. The increase would provide about $700,000 net, the governor estimated, to be used for highway construction of about 600 miles yearly.

New Stations Building

Note: Material used in this column is principally taken from the newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Dysart, Ia.—Standard Oil Co., filling station.
Traer, Ia.—Standard Oil Co., filling station.
Audubon, Ia.—Cities Service Oil Co., filling station.
Ottawa, Kan.—Phillips Petroleum Co., filling station.
Sioux City, Ia.—Standard Oil Co., filling station.
Ottawa, Kan.—Shell Petroleum Corp., filling station.
Houston, Tex.—J. O. Goodman, service station.
Fairfield, Ia.—Shell Petroleum Corp., filling station.
Clinton, Mass.—John F. Fuller, filling station.
Pulaski, Va.—Pulaski Filling Station, Inc., several filling stations.
Minneapolis, Minn.—Peoples Co-operative Oil Co., filling station.
Cincinnati, O.—Standard Oil Co., filling station.
Philadelphia, Pa.—Charles Kahn, filling station.
Kenton, O.—Standard Oil Co., filling station.
Battleboro, Vt.—Standard Oil Co., filling station.
Chelsea, Mass.—Rachel Cohen, filling station.
Baltimore, Md.—Standard Oil Co., filling station.
Baltimore, Md.—Shell Eastern Petroleum Products, Inc., filling station.
St. Cloud, Minn.—Shell Petroleum Corp., filling station.
Berryville, Ark.—Independent Oil Co., filling station.
Joplin, Mont.—Joplin Farmers' Union, filling station.
Austin, Tex.—J. H. Duncan, filling station.
Brainerd, Minn.—Tee Pee Oil Co., service station.
Hot Springs, S. D.—The Texas Co., filling station.
Eau Claire, Wis.—Eau Claire Petroleum Co., filling station.
Wisconsin Rapids, Wis.—L. L. Felker Co., filling station.
Sioux Falls, S. D.—The Brownell Corp., filling station.
Fairfield, Ia.—Shell Petroleum Corp., filling station.
Elkhart, Kan.—White Eagle Oil Refining Co., filling station.
Nowata, Okla.—Phillips Petroleum Co., filling station.
Sublette, Kan.—White Eagle Oil Refining Co., filling station.
Sweetwater, Tex.—Magnolia Petroleum Co., bulk station.

ADVERTISING PAGES REMOVED

How Gerwe Sold a Million Gallons In 1929 Thru One Station

By E. L. Barringer
N. P. N. STAFF WRITER

DAVENPORT, Iowa

BUSINESS was 97 per cent greater in January, 1930, than in January, 1929, at Ben Gerwe's service station in Davenport, Iowa. That is a sizable increase for any station, but oil men in the Davenport territory have come to expect most anything of Ben Gerwe, a merchandiser who sold over 1,000,000 gallons of gasoline through his lone station in 1929.

How did he do it—increase his business by such a percentage in a winter month, and over a million-gallon business the year before. Service is Mr. Gerwe's explanation.

Now service is a much abused word. It has no significance in the abstract. It must be reduced to the individual seller's application of his principles of service.

Mr. Gerwe obtained his January business increase by asking his station attendants to work harder on service. A meeting was held late in December. "Boys, we are going to work harder next month. We are going to push service harder. We are going to increase our business," was the substance of his speech. And the boys did work harder, almost twice as hard as in the previous January, according to the gallonage.

To explain Mr. Gerwe's idea of service is to get right into its application. His service starts with the appearance and conduct of his station attendants, all 19 of them. They must shave daily. They must wear neckties. They must tip their hat to women customers. They must end every sentence and question with sir or madam. They must smile a real sincere smile.

When a customer drives into the station all available men must hop right at servicing that car. The driver is approached with the question, "May I fill it up, sir?" The radiator is to be filled or tested without question. The windshield is to be wiped without question. The tires are to be checked, the attendant asking, "How many pounds pressure sir?" When change is made the attendant inquires, "Is there anything else sir?" The questions have been standardized, so that all attendants use the same wording.

Attendants are taught to remember names of customers and to inject this personal element in selling. To help the attendants know customers the station purchases each year the list of license registrations, and obtains the additions issued from time to time. These lists are kept in the station, so attendants may consult the directory when they have observed a certain car coming into the station a few times.

Information is an important item of the station's service. On a blackboard on the outside of the building the current weather report is tacked up. The writing is in large lettering, and important changes are underscored. The weather report is often a good salesman for anti-freeze solutions.

The station has a big call for road information. To keep the maps clean and orderly they are on rollers on the inside wall of the building. A customer may look at any map, and when finished it goes back in place, out of the way.

Ben Gerwe
He sold 1,000,000 *gallons of gasoline through one station in Davenport, Iowa, last year*

Many customers consult the attendants in mapping out motor trips, and routings have been given for as distant places as California.

The information service has been used for peculiar requests, as well as the usual settling of poker or bridge disputes. On the day before Thanksgiving a woman called asking when she should put her turkey in the oven the next day. Company was driving in from Iowa City, and she had heard the roads were bad, so she wondered how long it would take to make the trip and when to start dinner.

Several months ago a woman called inquiring if a factory, visible from the station, was lighted up. She explained that her husband had telephoned he would be working at the factory that evening, and she wanted to check up on him.

Free car delivery service is another part of the station's service. Attendants will service the car during the day and deliver it when wanted. To cash in on the advertising value of this service Mr. Gerwe mailed small cards, suitable for carrying in a bill fold, to professional men in his territory. In several offices the card was mailed to one man, and the others asked Mr. Gerwe if they, too, could have a card. The service, of course, is given any customer, but mailing out cards advertised the service and many professional men flash their cards when using the service now.

This service also builds a back log of work for spare moments during the day. These cars are serviced whenever the pits or pumps are free.

To advertise his business Mr. Gerwe retains a local advertising agency on a monthly fee basis, and sends out 30-day reminder cards. A woman employe daily enters lubrications jobs in a loose card file. Each week she goes through the cards taking off names of customers to receive a card. Attendants also keep a check on customers, and when one has not been in the station for some time

GETTING *ahe*

GALLONS
19 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
NEPTUNE
GALLONS
RED HAND SHOWS TOTAL GALLONS
TURN HANDS BACK TO ZERO BEFORE DELIVERY
1/2 GALLON
3/4 GALLON
1/4 GALLON

NEPTUNE

LOOK AT THE METER WH

a extra 2 or 3 gallons from every car!

A real opportunity to build business with meter pumps, Neptune equipped!

Let the cars come crowding in! The more the better. Rush hours won't bother you if you have Neptune-metered pumps.

Ask every motorist, too, if he wants a full tank. Nine times out of ten he does. With the speedy Neptune-metered pump, you can give him 8, 9 or 12 gallons in half the time it formerly took to serve just 5. There's no waiting. No delays.

Of course the Neptune Meter is the "heart" of the pump. It is accurate. It is easy to read, both by the motorist and by the filling station man. Price rings, quickly removable and showing the correct charge for gasoline sold, are furnished with every meter. So is a bell-ringing attachment, that rings as each gallon is delivered.

Use the coupon and get the facts before you order your new meter pumps.

NEPTUNE METER COMPANY

Makers of over 5,250,000 precision meters since 1892

Main Office: 50 EAST 42nd STREET · NEW YORK, N. Y.

Branch Offices:
Atlanta Boston Chicago Dallas Denver Los Angeles Louisville Portland, Ore. San Francisco

GASOLINE METER

TE WHEN YOU BUY THE PUMP

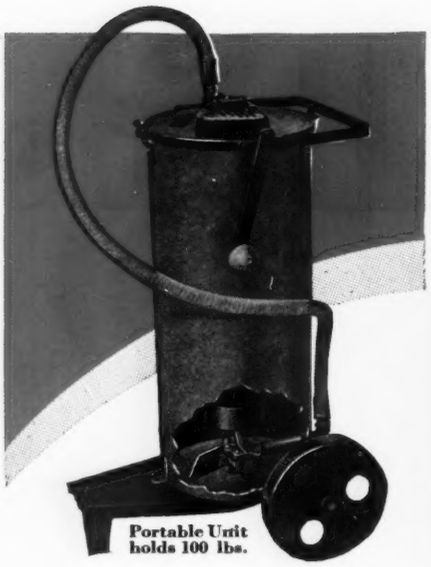
NEPTUNE METER COMPANY
50 East 42nd St., New York, N. Y.

Please send copy of "Putting Extra Dollars Into Your Till" to

Name.....

Address.....

.....



Portable Unit holds 100 lbs.

THE *ROYWAY* IS THE *RIGHT WAY*

Guarantees full weight without overweight on every sale of transmission and differential grease—automatic, reliable, fool-proof. Not affected by weather or density of grease.

Stops and will not go when grease ceases to flow. Dial returned to 0 after each sale simply by pressing button. Meter showing total sales if desired.

The ROYWAY complies with the specifications and tolerances of the U. S. Bureau of Standards and has been specially approved by officials in some of the most exacting States in the country.

Royway SERVER

Send for literature to

ROY MANUFACTURING CO., Quincy, Mass.

Hundred pound drum unit fits standard drum—made to fasten securely and change quickly

A million gallon service station, that is the amount that went through this station in 1929. *The new year started off with an increase in business of* 97 *per cent*

they notify the office. The city salesman, or a telephone call, is used to reach these delinquent customers.

Price has been relegated deliberately to the background of this article because it receives the same attention from Mr. Gerwe. He has been a firm believer in selling what he considers quality merchandise, with good service, at a fair price.

Like most other oil men Mr. Gerwe has had to contend with cut price situations, and in addition has been faced with an unequal price structure through the workings of state gasoline tax laws.

His station is in Davenport, Iowa, at the end of the only no-toll bridge across the Mississippi for some distance along the river. On the opposite bank are the cities of Rock Island and Moline, Ill. For years Iowa has imposed a gasoline tax, while Illinois withstood a tax until August, 1929. So in building up his business Mr. Gerwe has been confronted with this difference in price.

Mr. Gerwe, of course, has been up against competition for business on a price basis. "When they talk price I just talk service a little faster and a little harder," he said. "There are few customers that slip away from us on that line of talk."

Incidentally that January increase this year was made in the face of gasoline selling 3 cents a gallon cheaper over in Rock Island, Ill., at the other end of the bridge.

Service, never handling an inferior product, and asking and getting a fair price is Mr. Gerwe's explanation of his success. However, it does not explain the human element that has been responsible for thinking out and executing merchandising ideas—which centers in Mr. Gerwe.

Eight years ago he was a salesman for the Vacuum Oil Co., working out of the Chicago office. Home life was more attractive than living on the road for weeks at a time, so he settled in Davenport, and shortly after opened his station.

The location of the station had all the aspects of a big gamble then. Rivermen frequented the neighborhood when stopping at Davenport, and it was good policy to carry a gun at night. The building now housing his company, the Davenport Oil & Supply Co., was an old saloon.

Mr. Gerwe broke the ice in locating a station in that section of the city. Several automobile agencies went into business nearby and soon the neighborhood put on a different front. While the neighborhood had much to be desired for a service station, yet it had one virtue in that little capital was required for a building and land.

Now the station is on two main highways. Motorists entering or leaving Iowa through Davenport into Rock Island and Moline, Ill., use the no-toll bridge and pass Mr. Gerwe's station. A federal survey placed the traffic at 25,500 autos daily in summer. The daily average gasoline sales at the station are about 2800 gallons, the peak day has been 3486 gallons of gasoline and 137 lubrication jobs. In January the best day was 2400 gallons, with snow on the ground and the temperature around 25 degrees above zero.

Early in the game Mr. Gerwe deliberated between having only one station or spreading out with a chain. The decision to stay at one place he credits with being largely instrumental in his success.

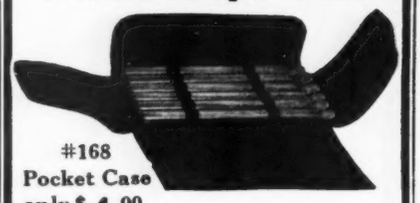
His efforts have been concentrated at one location. He usually is around the station and can greet the customers personally. Attendants see

SKELLY OIL COMPANY

El Dorado, Kansas Tulsa, Oklahoma
Kansas City Omaha Minneapolis
WAREHOUSES IN PRINCIPAL CITIES

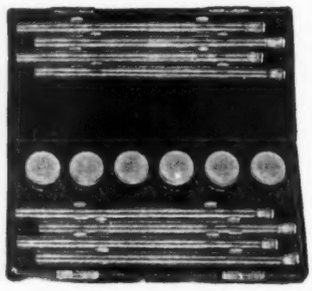
SKELLY

Pocket Sample Cases



#168
Pocket Case
only $4.00

Sturdily constructed from black cobra grain cowhide. Lined with red plush. Contains six bottles. 9"x½".



175—This case contains eight 9-inch bottles and six grease jars. Made from black cobra grain cowhide, lined with red plush. Has two serviceable nickel slide catches, price including metal capped corks, only..... $7.00

Less 10% for Cash
Other styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage
614 Delaware Kansas City, Mo.

SUPERIOR KEROSENE

A product of careful refining

Clear Sparkling
Water White
Burning Oil

Why not let us ship you a trial order for a car of 45 or 46 gravity SUPERIOR KEROSENE today?

SUPERIOR OIL WORKS
Warren, Pa.

Refiners of Petroleum

him around, and he can supervise the work himself. When he is not on the drives Mr. Gerwe is in his office, where he has full view of activities. The front of the office is of glass, facing the drive, and the office is on the ground level.

Selling burner oils was his first expansion. In this also he demonstrated his ability to go after business and get his price. His burner oil sells now at half a cent a gallon above competitors.

The burner oils are handled through a bulk plant, with 75,000 gallons storage capacity, eight blocks from the station. He sells and services Williams Oil-O-Matic burners also.

Late in 1928 the burner oil business was started, so he considers this his first real year in the business. Yet in January, 1930, he sold 160,000 gallons of burner oil. Much of it is moved through the keep-fill system, a system whereby the oil company watches the customer's tank and makes fills without the customer calling for oil. The system saves the customer the effort to check his oil supply, and provides the supplier with steady routing of trucks.

The second expansion, a new one-stop station, will be in operation about March 15. This station is across the street and half a block down from the present station.

Mr. Gerwe, however, is going to be decent towards his own competition. His present quarters are cramped, and he decided on another station to add more departments. Also, being on the opposite side of the street motorists will have easy access to both stations without cutting across traffic.

The new station will sell gasoline, motor oil, complete lubrication, Kelly-Springfield tires, tire repairing, USL batteries and battery repairing and charging, auto washing, and a stock of replacement accessories. This station will be used for all car washing. In case the lubrication facilities become crowded cars will be driven by the attendants over to the older station; thus the two stations will relieve each other in times of peak demand for service.

The present station handles Tydol gasolines, Mobiloil and Veedol motor oils, tires, and does complete lubrication. Gasoline storage for this station is underground at the rear of the lot. The capacity is 21,000 gallons, making for a quick turnover of goods. Gasoline will be trucked over to the new station.

With the start of the new station, Mr. Gerwe will make some changes in methods of compensating his employes for their labor. At the new station a quota will be set, and the profit on all goods sold over and above this quota will be shared with the employes.

At the present station a weekly bonus for the best sales effort will be started March 1. This will be a $5 award. Mr. Gerwe will decide the winner on the basis of how well he sells the whole line of products handled, rather than on the volume of business turned in for any one line.

He uses the pay envelope now as a means of reminding employes of any carelessness that costs money. If a gasoline tank cap is left off, or a wrench carried off on the running board of an auto Mr. Gerwe notes this on a slip of paper, with the cost of the error, and places it in the attendant's pay envelope.

A million-gallon service station, memberships in the Chamber of Commerce, the Exchange club and several fraternal orders are Mr. Gerwe's outward signs of his efforts of the past seven years. His reputation for being a successful merchandiser has spread over the state, he is a director of the Iowa Petroleum Association.

Motor Oil and Color Have Innings in "Ads"

CLEVELAND, Feb. 27.—Bidding four tricks and getting but three, as any bridge player knows, is tough luck.

That's the way the Quaker State Oil Refining Co., Oil City, drives home its point about choosing motor oil in a full page advertisement appearing in the Feb. 1 issue of Saturday Evening Post.

"A lot of motorists go 'down one,'" this ad says, "every time they bid on a gallon of ordinary motor oil. They buy four quarts—and actually get but three quarts of lubricant.

"Get that extra quart in every gallon of Quaker State motor oil," the ad urges. The point is appropriately illustrated by four people seated at a bridge table, with the offending player wearing a look of horrified amazement while his opponent rakes in the lost tricks.

Four other oil companies took as many full pages in that issue of the Post. The Pennzoil Co., Oil City, illustrated its advertisement with a glowing picture of California's redwoods, indicating long driving distances requiring a durable lubricant.

The Texas Co. uses a colorful street scene in Singapore to illustrate the fact that Texaco is sold in 46 foreign countries.

The Vacuum Oil Co. stresses the use of its new Mobiloil Arctic during the cold winter months. This ad includes a lubrication chart for various makes of cars.

A man points his finger to a car model in a car manufacturer's instruction book where frequent and thorough lubrication is urged, in an advertisement of the Cities Service Co. Cities Service oils and grease and Koolmotor gasoline are the headliners in this advertisement.

Daily Average Crude Oil Production and Imports

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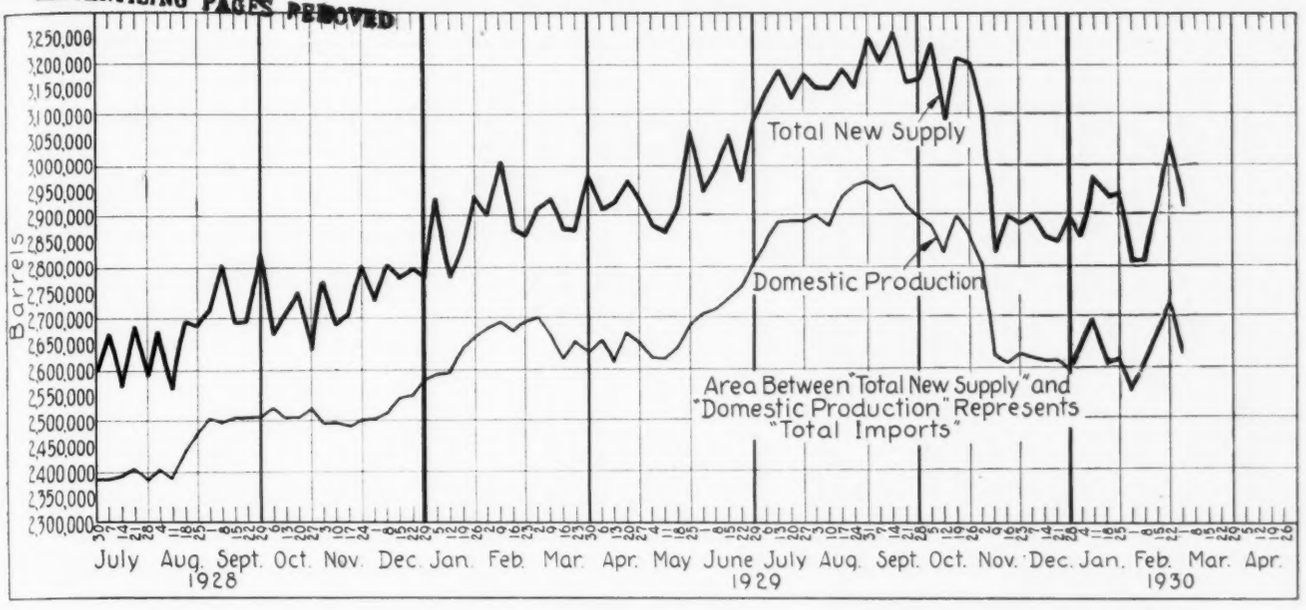

Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY	March 1	Feb. 22
Production east of Rockies	1,900,950	1,916,050
Decrease		15,100
Total production in U. S.	2,623,950	2,722,050
Decrease		98,100
Crude oil imports	285,860	327,715
Decrease		41,855
Total crude supply	2,909,810	3,049,765
Decrease		139,955

OKLAHOMA	Mar. 1	Feb. 22
Allen Dome	19,050	20,150
Asher	2,300	2,350
Blackwell	3,100	3,100
Bowlegs	21,250	21,100
Braman	3,650	3,650
Bristow-Slick	16,450	16,800
Burbank	16,600	16,600
Carr City	10,400	8,250
Cromwell	7,250	7,300
Cushing	14,400	14,400
Davenport	1,200	1,200
Duncan District	7,850	7,850
Earlsboro	33,500	32,750
East Earlsboro	31,500	47,050
Fox	1,200	1,250
Garber	4,450	4,500
Graham	3,700	3,700
Healdton	11,950	11,950
Hewitt	7,450	7,450
Hubbard	1,500	1,500
Knoawa	7,200	.....
Little River	42,000	47,800
Little River East	15,050	19,800
Logan County	10,000	10,500
Maud	5,800	6,050
Mission	12,800	14,600
North Okmulgee	11,300	11,250
Oklahoma City	83,900	88,550
Osage (Outside Burbank)	26,350	26,350
Papoose	2,850	2,850
Pearson	750	750
Sasakwa	9,250	8,900
St. Louis	43,650	44,350
Scholem-Alechem	13,800	13,800
Searight	9,250	8,200
Seminole	21,050	21,650
Seminole, East	3,250	4,100
South Okmulgee	6,250	6,250
Thomas	500	500
Tonkawa	8,350	8,350
Wewoka	4,050	4,100
Yale-Jennings	7,850	8,000
Total, Oklahoma	617,200	646,800
Decrease		29,600
Others	53,200	57,200

KANSAS		
Augusta-Fox Bush	2,900	2,900
Churchill	4,600	4,550
Eldorado-Towanda	13,450	13,400
Florence-Covert	850	850
Greenwood County	19,500	19,600
Oxford	2,850	2,900
Peabody-Elbing	3,150	3,150
Rainbow Bend	1,100	1,100
Russell	3,250	3,300
Sedgwick County	23,500	23,250
Voshell	4,950	.....
Others	34,600	35,600
Total, Kansas	114,700	110,600
Increase		4,100

NORTH LOUISIANA		
Bellevue	600	600
Caddo, light	10,350	10,150
Caddo, heavy	2,700	2,700
Cotton Valley	2,100	2,100
De Soto and Red River	3,100	3,150
Elm Grove	450	450
Haynesville	4,550	4,550
Homer	3,600	3,550
Pleasant Hill	750	750
Urania	5,000	5,100
Zwolle	5,300	5,300
Others	3,300	3,300
Total, North Louisiana	41,800	41,700
Increase		100

ARKANSAS		
Champagnolle	4,300	4,200
El Dorado	4,100	4,050
Lisbon	1,000	1,050
Nevada	1,100	1,100
Smackover, light	5,150	5,150
Smackover, heavy	41,650	41,400
Stephens	950	950
Others	250	250
Total, Arkansas	58,500	58,150
Increase		350

TEXAS (Outside Gulf Coast)		
Panhandle District		
Carson County	9,400	9,900
Gray County	54,900	52,600
Hutchinson County	23,500	25,300
Wheeler County	600	600
Others	700	600
Total, Panhandle Texas	89,100	89,000
Increase		100
North Texas		
Archer County	17,300	17,400
Burkburnett	8,150	8,200
Electra	11,400	11,450
Iowa Park and K. M. A.	5,100	5,100
Montague-Cooke	11,100	11,150
Wilbarger	24,600	26,000
Others	2,200	1,700
Total, North Texas	79,850	81,000
Decrease		1,150
West Central Texas		
Brown County	8,800	8,750
Callahan County	3,300	3,300
Coleman County	5,500	5,500
Eastland-Desdemona	5,700	5,900
Jack County	4,550	4,500
Palo Pinto County	600	650
Shackleford County	8,500	9,000
Stephens County	5,250	5,300
Throckmorton County	700	700
Young County	8,550	8,100
Others	1,300	1,350
Total, West Central Texas	52,750	53,050
Decrease		300
West Texas		
Crane and Upton Counties	45,500	45,350
Crockett County	2,200	2,200
Howard County	37,900	36,700
Jones County	2,100	2,100
Mitchel and Scurry Counties	2,400	2,400
Reagan County	16,800	16,750
Winkler County	92,600	91,200
Yates	133,050	133,800
Balance Pecos County	6,500	6,200
Others	3,400	4,000
Total, West Texas	342,450	340,700
Increase		1,750
East Central Texas		
Boggy Creek	3,500	3,400
Corsicana-Powell	6,000	5,950
Currie	350	350
Mexia	4,300	4,450
Nigger Creek	200	200
Richland	250	250
Van Zandt	9,600	8,100
Wortham	900	900
Total, East Central Texas	25,100	23,600
Increase		1,500
Southwest Texas		
Dale	300	300
Darst Creek	15,800	17,000
Laredo District	8,850	8,800
Luling	10,400	10,300
Lytton Springs	900	900
Salt Flat	25,200	25,300
Somerset	1,400	1,450
Others	2,600	2,700
Total, Southwest Texas	65,450	66,750
Decrease		1,300
Total, Texas (Outside Gulf Coast)	654,700	654,100
Increase		600

GULF COAST		
Coastal Texas		
Barbers Hill	24,500	23,500
Batson	1,200	1,200
Big Creek	3,150	3,600
Blue Ridge	1,700	1,800
Boling	1,050	1,100
Damon Mound	500	500
Fannett	1,050	1,200
Goose Creek	4,900	4,900
Hull	9,250	8,400
Humble	18,350	16,200
North Dayton	1,000	1,150
Orange County	2,200	2,500
Pierce Junction	11,300	11,300
Port Neches	2,200	1,650
Raccoon Bend	11,800	11,800
Refugio County	36,300	33,500
Saratoga	1,000	1,000
Somerville	1,500	1,500
Sour Lake	2,350	2,300
South Liberty	5,500	5,850
Spindletop	17,300	17,350
Sugarland	12,200	12,400
West Columbia	6,100	6,200
Others	4,100	4,100
Total, Coastal Texas	180,500	175,000
Increase		5,500
Coastal Louisiana		
East Hackberry	1,350	1,400
Old Hackberry	1,250	1,700
Edgerly	650	600
Evangeline	1,100	1,100
Lockport	3,000	3,050
Port Barre	3,050	3,500
Sorrento Dome	100	100
Sulphur Dome	6,600	5,300
Vinton	4,050	4,250
Others	1,800	1,950
Total, Coastal Louisiana	22,950	22,950
Total, Gulf Coast	203,450	197,950
Increase		5,500

ROCKY MOUNTAIN		
Wyoming	Mar. 1	Feb. 22
Big Muddy	2,050	2,050
Elk Basin	750	750
Grass Creek	2,050	2,050
Labarge	2,400	2,050
Lance Creek	150	200
Lost Soldier	3,450	3,350
Oregon Basin	3,900	3,900
Rock River	2,200	2,300
Salt Creek	33,950	30,400
Others	2,750	2,150
Total, Wyoming	53,650	49,200
Increase		4,450
Montana		
Cat Creek	1,250	1,250
Pondera	2,400	2,000
Sunburst	4,950	4,950
Others	50	50
Total, Montana	8,650	8,250
Increase		400
Colorado		
Florence	750	650
Fort Collins	1,500	1,600
Moffat (Craig)	1,150	1,100
Others	1,500	1,500
Total, Colorado	4,950	4,850
Increase		100
New Mexico		
Artesia	700	700
Balance Lea and Eddy Counties	7,450	6,800
Hogback	400	400
Rattlesnake	700	1,300
Table Mesa	100	100
Others	950	950
Total, New Mexico	10,300	10,250
Increase		50
Total, Rocky Mountain	77,550	72,550
Increase		5,000
California		
Dominguez	10,500	10,500
Elwood-Goleta	41,800	37,500
Huntington Beach	41,000	41,000
Inglewood	22,000	22,000
Kettleman Hills	13,000	13,000
Long Beach	111,000	122,500
Midway-Sunset	73,000	77,000
Santa Fe Springs	166,000	221,000
Seal Beach	29,800	35,000
Ventura Avenue	53,900	65,000
Others	161,000	161,500
Total, California	723,000	806,000
Decrease		83,000
Eastern		
(Not including Michigan)	119,500	120,400
Decrease		900
Michigan		
Mt. Pleasant	7,750	8,200
Muskegon	5,600	5,400
Saginaw	200	200
Total, Michigan	13,550	13,800
Decrease		250

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended February 28 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Feb. 28
Plants Reporting	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)	94,500	161,700	106,100	82,000	77,000	521,300
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs	63,747 + 5.0	110,572 + 1.0	63,305 — 14.4	47,965 + 9.8	67,116 + 13.8	352,705 + 1.7
Da. Av. Other Oils	7,792 + 2.1	10,745 + 23.1	3,499 + 9.7	1,519 — 10.9	633 — 67.8	24,188 + 4.2
GASOLINE—Gallons						
Stocks, Feb. 21	29,294,000	72,393,000	27,886,000	12,427,000	13,157,000	155,157,000
Prod. 2-21 to 2-28	11,050,000 + 7.1	18,341,000 + 5.5	8,677,000 — 14.4	4,219,000 — 3.6	6,479,000 + 17.8	48,766,000 + 2.2
Ship. 2-21 to 2-28	11,044,000 + 19.6	16,885,000 — 2.1	9,310,000 + 48.9	1,246,000 — 66.5	6,827,000 + 11.1	45,312,000 + 6.4
Stocks, Feb. 28	29,300,000 + 0.02	73,849,000 + 2.0	27,253,000 — 2.3	15,400,000 + 23.9	12,809,000 — 2.6	158,611,000 + 2.2
Ratio Sales to Prod.	99.9%	92.1%	107.3%	29.5%	105.4%	92.9%
KEROSENE—Gallons						
Stocks, Feb. 21	9,809,000	7,354,000	2,766,000	27,000	2,396,000	22,352,000
Prod. 2-21 to 2-28	1,814,000 — 6.1	2,514,000 + 5.5	1,532,000 — 5.6	42,000 +147.1	868,000 + 80.1	6,770,000 + 5.2
Ship. 2-21 to 2-28	2,111,000 — 16.1	2,924,000 + 42.3	1,656,000 — 13.2	31,000 + 14.8	455,000 — 29.2	7,177,000 + 0.4
Stocks, Feb. 28	9,512,000 — 3.0	6,944,000 — 5.6	2,642,000 — 4.5	38,000 + 40.7	2,809,000 + 17.2	21,945,000 — 1.8
Ratio Sales to Prod.	116.4%	116.3%	108.1%	73.8%	52.4%	106.0%
STOVE DISTILLATE—Gallons						
Stocks, Feb. 21	2,346,000	4,480,000	762,000	201,000	93,000	7,882,000
Prod. 2-21 to 2-28	501,000 + 31.8	877,000 — 8.8	170,000 + 4.9	114,000 + 25.3	118,000 — 28.9	1,780,000 + 1.1
Ship. 2-21 to 2-28	208,000 — 48.3	1,304,000 + 36.3	123,000 — 28.5	102,000	142,000 — 22.4	1,879,000 + 9.6
Stocks, Feb. 28	2,639,000 + 12.5	4,053,000 — 9.5	809,000 + 6.2	213,000 + 6.0	69,000 — 25.8	7,783,000 — 1.3
Ratio Sales to Prod.	41.5%	148.7%	72.4%	89.5%	120.3%	105.6%
GAS OIL—Gallons						
Stocks, Feb. 21	3,749,000	34,720,000	2,210,000	6,590,000	4,904,000	52,173,000
Prod. 2-21 to 2-28	1,571,000 + 7.5	3,539,000 + 29.0	490,000 — 40.7	—158,000	2,368,000 — 14.6	7,810,000 + 3.4
Ship. 2-21 to 2-28	1,186,000 — 2.9	698,000 — 68.6	902,000 — 7.8	763,000 — 20.9	1,293,000 — 55.0	4,842,000 — 41.4
Stocks, Feb. 28	4,134,000 + 10.2	37,561,000 + 8.2	1,798,000 — 18.6	5,669,000 — 14.0	5,979,000 + 21.9	55,141,000 + 5.7
Ratio Sales to Prod.	75.5%	19.7%	184.1%	.....	54.6%	62.0%
FUEL OIL—Gallons						
Stocks, Feb. 21	10,783,000	28,680,000	67,940,000	11,348,000	24,987,000	143,738,000
Prod. 2-21 to 2-28	4,848,000 — 7.1	6,424,000 — 20.6	8,337,000 — 10.6	7,456,000 + 8.1	5,705,000 — 7.3	32,770,000 — 8.2
Ship. 2-21 to 2-28	3,880,000 — 15.8	6,098,000 — 14.1	8,860,000 — 4.5	5,268,000 — 14.6	4,963,000 — 23.6	29,069,000 —13.6
Stocks, Feb. 28	11,751,000 + 9.0	29,006,000 + 1.1	67,417,000 — 0.8	13,536,000 + 19.3	25,729,000 + 3.0	147,439,000 + 2.6
Ratio Sales to Prod.	80.0%	94.9%	106.3%	70.7%	87.0%	88.7%

Gasoline Produced by Various Methods, Week Ended February 28

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	7,580,000	68.6	12,113,000	66.0	6,202,000	71.5	3,883,000	92.0	2,663,000	41.1	32,441,000	66.5
Cracked	2,498,000	22.6	4,906,000	26.7	1,557,000	17.9	93,000	2.2	2,841,000	43.8	11,895,000	24.4
Natural	972,000	8.8	1,322,000	7.3	918,000	10.6	243,000	5.8	975,000	15.1	4,430,000	9.1
Total	11,050,000		18,341,000		8,677,000		4,219,000		6,479,000		48,766,000	

+ or — columns are % change over previous week.

Crude Runs Again Increased in Mid-Continent

Staff Special—By Telegraph
TULSA, March 4

CRUDE oil runs to stills at 93 Mid-Continent refineries that report operating statistics weekly to this publication, were increased 5900 barrels daily average in the week ended Feb. 28. Runs that week were 50,000 barrels daily average larger than runs the first week of February.

Gasoline output was increased 1,000,000 gallons over output the preceding week to the largest volume in any week since Oct. 18. Gasoline shipments increased 2,700,000 gallons to the largest volume since Nov. 15. North Texas and Louisiana-Arkansas refiners drew on stocks but gains in other districts were large enough to cause an accumulation of 3,400,000 gallons in the entire field. Stocks Feb. 28 were 18,600,000 gallons larger than stocks a year before.

Kerosene production was increased

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Feb. 28. Change in stocks figures from Jan. 31.

GASOLINE

	Gallons
Production	179,102,000
Shipments	171,796,000
Net change in stocks	+7,306,000
Ratio sales to production	95.9%

KEROSENE

	Gallons
Production	24,789,000
Shipments	27,888,000
Net change in stocks	—3,099,000
Ratio sales to production	112.5%

STOVE DISTILLATE

	Gallons
Production	7,217,000
Shipments	7,897,000
Net change in stocks	—680,000
Ratio sales to production	109.4%

GAS OIL

	Gallons
Production	28,256,000
Shipments	31,693,000
Net change in stocks	—3,437,000
Ratio sales to production	112.2%

FUEL OIL

	Gallons
Production	127,228,000
Shipments	124,210,000
Net change in stocks	+3,018,000
Ratio sales to production	97.6%

slightly but shipments were steady and stocks were reduced 400,000 gallons.

Gas oil production increased slightly with shipments considerably lower and stocks increased almost 3,000,000 gallons. Fuel oil stocks increased 3,700,000 gallons.

Flexibility

(*Continued from Page* 51)

and end point temperatures only being included.

Table No. 2

Variation in distillation ranges of tower products obtained under different representative operating conditions.

	Large flash, or preheater, tower.	Tower No. 1	Tower No. 2
Initial temp.	115 to 125 F.	192 to 240 F.	290 to 348 F.
End Point	280 to 312 F.	276 to 381 F.	385 to 478 F.

A fair idea may be obtained of the degree of fractionation, and the distillation curve of the different cuts as shown by the laboratory distillation figures from four cuts being taken off simultaneously, given in Table 3.

As previously indicated, the aim of the management in constructing such a plant was to achieve the maximum flexibility of operation, to obtain judiciously divided cuts of such distillation ranges that they could be marketed as regular products or be blended to meet a demand by a particular customer for a motor fuel, naphtha or illuminating oil to special and frequently very strict and unusual specifications.

The company's policy is to give "every customer just what he wishes to his own specifications, at slight extra cost for special manufacturing." For this reason distillates are fractionated to narrow limits of temperature range for later blending, rather than take off a small number of wide cuts to be later re-run to definite specifications. That such policy necessitates a flexible still unit and careful operation is obvious; a comparatively large number of relatively small storage tanks is needed to care for the storage and blending of the various cuts.

This policy of supplying special demands by many customers for products varying more or less widely in specification details, also makes it necessary that the manufacturing and sales managers be in close touch at all times, and that each manager know thoroughly the demands made upon, and the capabilities of the other department. In this case Paul G. Blazer, vice-president and general manager of the company, states that the sales department knows within very narrow limits the types of products which the refinery manager can produce from the crude, and the approximate effect the manufacture of any certain product will have on the properties of the remaining cuts obtained. Consequently, instead of the refiner making what

(*Continued on Page* 94)

BETHLEHEM
WAX PLANT EQUIPMENT

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Wax Distillate Chilling Machines — *Scale Wax Cooling Drums*
Wax Testing Presses — *Paraffine Wax Sweater Plants*
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Refinery - Tank Wagon Markets

National Petroleum News

Atlantic Coast Gasoline Prices Down; Fuel Oils Lower in Middle West

CLEVELAND, March 4

LOWER prices for gasoline on the Atlantic seaboard and substantial reductions in fuel oil prices in the middle west were outstanding features of domestic refinery markets the last week of February.

Interest was revived in export markets by the first change in gasoline prices made by the Export Petroleum Association since its inception over a year ago.

Retail markets, generally speaking, showed little change. Price cutting increased in the eastern states, however, and a large number of local tank wagon and service station price reductions by Standard companies resulted in that area.

Gasoline tank car prices in the northern Atlantic seaboard districts reflected the lower retail prices recently placed in effect in the Standard of New York territory. U. S. Motor was being offered in tank cars at New York harbor refineries at 8 cents a gallon, the lowest tank car price since November, 1927. Barge business was being done last week at considerably under this level.

A recession in industrial activity in the middle west was said to have caused the reductions in fuel oil prices in the Mid-Continent and Chicago markets. Steel plant operations were at a lower level. The mild weather which prevailed during the first three weeks of February slackened the demand from domestic burning oil distributors and this combined with the lighter demand from industrial users caused fuel oil stocks to pile up at refineries.

Activities of independent operators together with lower refinery and crude market price structures in the Mid-Continent were said to have been the deciding factors with the export association in reducing its posted prices for gasoline and kerosene at the Gulf. The latter factor probably had more influence on the association's action, however, since it has already withstood the pressure of the so-called bootleg activities of traders acting outside the association a number of times.

The lower posted prices at the Gulf automatically reduced prices which refiners in the Mid-Continent will get for their March commitments inasmuch as the association's buyers stipulated this when they placed orders for nearly 20,000,000 gallons of gasoline during the week ended Feb. 22. Mid-Continent traders were uncertain as to what effect this might have on the domestic gasoline market.

Generally speaking, markets for other oils in all sections of the country showed little change over the previous week. Bright stock was offered slightly lower in the Pennsylvania market but held at 37 cents a gallon to the jobbing trade in the Oklahoma market. The continued light demand for wax resulted in an 0.125-cent reduction in scale prices at New Orleans. New York prices were unchanged.

Spot Buying Quiet in Chicago Market

Staff Special

CHICAGO, March 1

ALL products in the Chicago resale market generally were inactive during the last week of February and interest centered mainly around prices of gasoline for March shipment.

Considerable difference of opinion was evidenced by the trade as to what prices for U. S. Motor gasoline for March delivery would be. Several carlot marketers were of the opinion the market would advance at least 0.125 cent and were quoting that much higher than their present spot prices. Others said they expected unsettled weather most of the month and as road conditions were not very good at present, and since there were heavy stocks of gasoline already on hand, they were willing to quote their present spot prices for shipment over the month.

Several refiners refused to quote for shipment over this period. They believed the market would rise and said they would rather take a chance on a higher spot market than to sell at present levels.

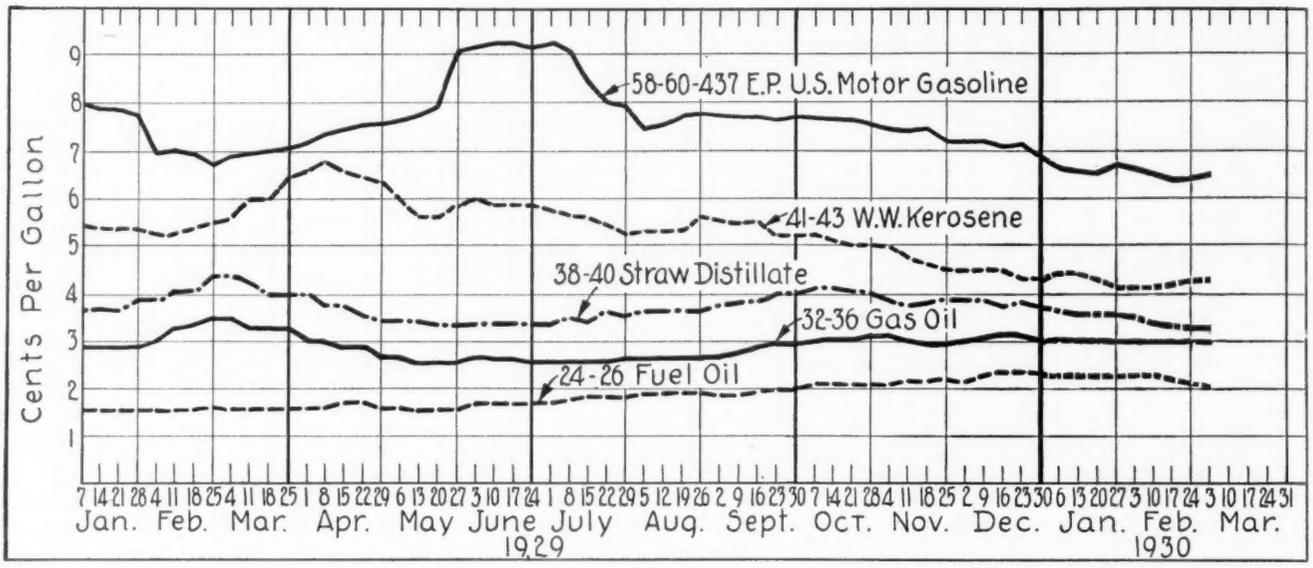
Sales of U. S. Motor, for March shipment, were reported at 5.75, 5.875, 6 and 6.125 cents. One sale of 50 cars of Motor for shipment over March at 5.50 cents was reported Feb. 28, but this could not be confirmed by *Platt's Oilgram*. Practically all the 5.75 cent sales reported were on North or West Texas gasolines.

Spot gasolines were inactive during the week, although a number of refiners reported their contract business was satisfactory, and several large distributors in the Standard of Indiana territory reported a heavy increase in sales over January. They attributed this demand to the unseasonably mild weather which prevailed most of February.

There was little change in spot U. S. Motor gasoline prices over those prevailing at the end of the previous week. The bulk of sales reported continued at 5.75 to 6.50 cents. Most carlot marketers said they were moving Oklahoma Motor at 5.875 to 6 cents, with North and West Texas goods at 5.75 to 5.875 cents. They reported their buying prices generally as 5.625 cents in Texas and 5.75 cents in Oklahoma. Quotations from Oklahoma refiners largely were at 6 to 6.50 cents. The refiners in Illinois and Indiana reported their spot business quiet, with quotations at 6 to 6.50 cents, f.o.b. Group 3.

One piece of business which was of considerable interest to the Chicago trade was the Chicago post office gasoline contract for the period from April 1 to June 30. The bids were opened this week, although the successful bidder will not be known until confirmed by the postal authorities at Washington.

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

Most of the bids were either on a flat rate basis or based on the spot market date of shipment with a maximum price specified. The lowest flat rate bid called for a price of 6 cents in April, 6.25 cents in May and 6.50 cents in June, with 0.5 cent allowed for handling charge. The other flat rate bids were: 6.50 cents in April, 6.75 cents in May and 7 cents in June with 0.5 cent for handling; 6.25 cents flat over the three months, with 1.25 cents for handling; and 6.15 cents in April, 6.45 cents in May and 6.90 cents in June, with 0.5 cent for handling. The spot demand for kerosene was reported as less active than the previous week by most sellers. Prices, however, were generally unchanged except that one or two marketers reported it easier to buy 41-43 w.w. for resale at 4 cents. Most quotations to jobbers were still at 4.125 to 4.25 cents.

Generally fair weather will prevail over most of the Standard of Indiana territory next week, according to the Chicago weather bureau. Moderate temperatures probably will prevail in the middle and closing days of the week.

Flexibility

(*Continued from Page* 91)

products he in his opinion can make, most economically and successfully, and leaving it up to the sales force to dispose of these products at a profit if possible, the sales manager keeps the plant superintendent informed as to what products are required to meet sales demands, keeping in mind the plant's problems, and the plant manufactures those products to specification.

Mr. Blazer states that, for their plan of management to be successful, several conditions must be propitious. First, that plant must be flexible, the crude suitable, and the refining personnel well trained in this style of operation; the sales department must understand thoroughly the limitations of crude and plant, and the available market must be such as to make such "specialty" manufacturing profitable by reason of the variety of products demanded by the customers.

He believes that such methods of operation are much more practical for a small plant than for a large organization.

That the company's methods are good business under existing conditions is evidenced by the fact that the company has paid reasonable dividends to its stockholders through good years and bad, and the plant runs regularly to capacity to supply its customers.

Of the total light distillate produced below the kerosene range, Mr. Blazer states that about one-third is sold as special naphthas such as Stoddard Solvent, rubber solvents, and other similar products; one-third as a 400-endpoint Ethyl gasoline, and the remaining third as regular, anti-knock, and aviation motor fuels. Gas oil is sold as furnace oil, diesel fuel and industrial fuel oil.

Ideco Opens Office in Pittsburgh

CLEVELAND—From the Columbus office of The International Derrick & Equipment Co. comes the announcement that new division offices have been opened in Suite 1510 Grant Building, Pittsburgh.

James H. Dye, well known throughout the oil industry, will be in charge as Division Manager.

Prices 10 Years Ago
March 1, 1920

	Oklahoma	Penna.
58-60 U. S. Motor.....	19.75–20.00c	22.00–23.50c
80-84 Natural	22.75–23.00c	.....
Kerosene (41-43 Okla.; 47 w. w. Pa.).....	11.25–11.50c	15.00–15.25c
Fuel Oil (24-26 Okla.; 38-40 Pa.)	$2.15–$2.35	12.50–13.00c
Crude (Okla. 35-35.9)....	$3.25	$5.80
Chicago tank wagon		22.00c

Prices A Year Ago
March 4, 1929

	Oklahoma	Penna.
58-60 U. S. Motor.....	6.7813c	9.00–9.50c
Grade A Natural	6.875–7.00c	.....
Kerosene (Okla. 41-43; Pa., 47 w. w.).....	5.50–5.75c	7.625–8.00c
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.675	5.00–5.25c
Crude (Okla. 35-35.9)....	$1.17	$4.00
Chicago tank wagon		14.00c

Mid-Continent Refinery Markets

Fuel Oils and Light Gasolines Recede

Staff Special
TULSA, March 1

A DECLINE in fuel oil and higher gravity gasoline prices, a steady demand for refined gasolines and kerosenes, and a comparativley tight natural gasoline situation characterized the Mid-Continent markets the last week of February.

Several factors contributed toward the lower fuel oil prices. The cut in crude oil caused a slight reduction in price received on contracts from railroads and industrials where the contract price was based on 60 per cent of the price of 36 gravity crude.

Milder weather turned more users to higher cold test oils and refiners making the low cold test grades were forced to lower prices to get March business.

Demand for gasolines continued to hold up well in all districts, but sellers generally were of the opinion that the weather was the controlling factor and that jobbers still were reluctant to buy ahead. A few sales of gasoline were reported made to marketers late in the week at prices slightly under the spot market quotations, the marketers buying for March delivery. Most of this gasoline, however, was to be shipped from territories other than Group 3.

The reduction in posted prices of export gasolines at the Gulf caused lower prices for domestic grades of higher gravities in Oklahoma and north Texas but since the season is waning for those grades, the reduction was of little interest.

The refiners who have been selling to the Export Petroleum Association had been obtaining prices based on the posted price at the Gulf. The purchase agreements contained the clause that the prices paid would be contingent on that posted price. The reduction accordingly caused a loss of 0.50 cent a gallon on the gasoline which will be shipped in March, but the reduction was not unexpected. Refiners for some time had received prices considerably above the domestic market.

Buying which had been expected in the natural gasoline market late in the month developed almost on schedule, and prices were steady throughout the week. Material was closely held even through the last two days, which was one of the best indications the market was virtually free of goods for spot shipment. It has been observed that when gasolines were being held in anticipation of higher prices, there normally developed a flurry of selling in order to clear the books before the first of the month, but this flurry was absent Thursday and Friday.

Kerosene demand was steady throughout the week in all districts. Prices advanced slightly in Kansas and north Texas. Kansas refiners reported shipments were larger in volume, particularly for the grade of kerosene used in incubators. Tractors were beginning to be used in the fields and jobbers bought in anticipation of an increase in demand within the next few weeks.

Stove distillates faded rapidly from the market picture. Several refiners who had not obtained the orders they had anticipated this winter, even through the severe cold spell, attempted to move their stocks, and found jobbers extremely cautious in their buying. A few jobbers still had some distillates in storage and showed no interest in future purchases. Others bought only for immediate requirements.

Gas oils were more freely offered in Oklahoma and north Texas. The ordinary grade was slightly lower in price, particularly on quotations for over March delivery. The zero oils also were slow in movement, their position being about the same as that of distillates.

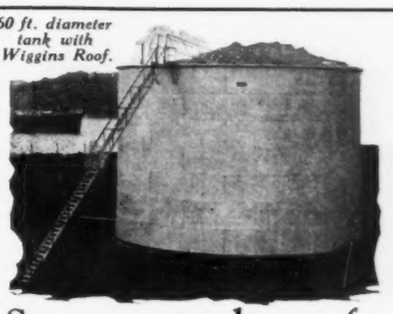
Oklahoma refiners made no changes in their neutral oils and cylinder stocks quotations. Considerable competition continued to be encountered on bright stocks but the prevailing quotation for Oklahoma goods was 37 cents.

Wax was steady at unchanged prices.

Improved Lube Demand Expected

HOUSTON, March 3.—Manufacturers of Gulf Coastal lubricants look for improved demand from domestic jobbing territory this month, reflecting requirements for the spring trade. Business has been slow the last few weeks, but movements have been firmly held at recently higher price schedules on the various viscosities. Some export inquiries are reported being made, but so far as reported no sales have been made.

COLUMBUS, O.—W. P. MacDonald, for several years a field secretary of the Ohio Petroleum Marketers Association, has joined the sales force of the Foreman-Bassett Co., Cleveland, specializing on road maps which include points of historical interest.



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For storage of 25,000 gals. and up, get our quotations on field erected tanks equipped with Wiggins Roofs.

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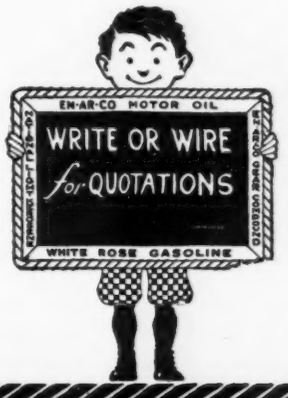
Boston.....1516 Consolidated Gas Bldg.
Dallas.....3339 Magnolia Bldg.
Atlanta.....1050 Healey Bldg.
San Francisco.....1060 Rialto Bldg.
Birmingham..1534 Fiftieth Street, North
Havana, Cuba.....Apartado 2507



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MOTOR OIL
White Rose
GASOLINE

YOU will make money if you handle these nationally advertised brands.

All grades of lubricating oils and greases.

The National Refining Co.
Cleveland, Ohio

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect March 3

	Price F.O.B. Group 3		*Price F.O.B. Point of Origin*		*If for Particular Destination*
Oklahoma	6.4715	(Wt. Avg.)	6.4715	(Wt. Avg.)	
Kansas	6.50				S. O. Neb. & Indiana Territory, etc.
Kansas			No sales reported		Kansas only.
North Texas	5.75–6.00		5.75–6.00		
West Texas	5.75–6.00		6.00		
Louisiana-Arkansas	5.75–6.25				Michigan, Ohio and Indiana.
Louisiana-Arkansas			6.50		State or differential haul.
Indiana-Illinois	6.00–6.50		*		S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Chicago Resale Market

CHICAGO, March 1

SPOT gasolines were inactive most of last week in the Chicago market. Bulk of U. S. Motor sales still were reported at 5.75 to 6.50 cents. Most carlot marketers reported moving North and West Texas Motor at 5.75 to 5.875 cents, f.o.b. Group 3, and Oklahoma Motor at 5.875 to 6 cents. Oklahoma, Illinois and Indiana refiners generally quoted Motor at 6 to 6.50 cents. Sales of U. S. Motor for March shipment were reported at 5.75, 5.875, 6 and 6.125 cents. Prices of distillate and fuel oil were lower in most quarters.

Following prices represent sales made on Group 3 freight basis, although shipments may originate in other refining districts, such as North Texas, West Texas, Arkansas, Louisiana, Illinois, Indiana, Kentucky, etc.

	Prices Mar. 3	Prices Feb. 24	Prices Feb. 17
58-60 U. S. Motor, 437 e.p.	5.75 – 6.50	5.75 – 6.50	5.75 – 6.50
60-62 437 e.p. gasoline	5.875– 6.50	5.875– 6.50	5.875– 6.50
60-62 400 e.p. gasoline	6.25 – 6.50	6.25 – 6.50	6.25 – 6.75
64-66 375 e.p. gasoline	7.00 – 7.25	7.00 – 7.50	7.25 – 7.75
68-70 350-360 e.p. gasoline	7.50 – 7.75	7.50 – 8.00	7.75 – 8.00
41-43 w.w. kerosene	4.125– 4.25	4.125– 4.25	4.125– 4.25
42-44 w.w. kerosene	4.375– 4.625	4.375– 4.625	4.25 – 4.75
38-40 straw distillate	3.125– 3.375	3.25 – 3.50	3.25 – 3.50
32-36 ordinary dark gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
32-36 dark zero gas oil	2.875– 3.125	2.875– 3.125	3.00 – 3.125
32-36 straw zero gas oil	3.125– 3.25	3.125– 3.25	3.25
28-30 zero fuel oil (per bbl.)	$1.075–$1.10	$1.10 –$1.15	$1.125–$1.175
28-30 fuel oil (per bbl.)	$1.025–$1.05	$1.05 –$1.075	$1.075–$1.10
24-26 fuel oil (per bbl.)	$0.85 –$0.925	$0.925–$1.00	$0.925–$1.00
18-22 fuel oil, low sulfur (per bbl.)	$0.775–$0.825	$0.775–$0.825	$0.80 –$0.825
18-22 fuel oil, high sulfur zero (per bbl.)	$0.725–$0.80	$0.75 –$0.80	$0.775–$0 825

Weighted Average Prices

OKLAHOMA

	Mar. 3		Feb. 24		Feb. 17	
	No. of cars	Price	No. of cars	Price	No. of cars	Price
58-60 U. S. Motor, 437 e.p.	44	6.4715	40	6.4468	37	6.5135
60-62 437 e.p. gasoline	3	6.1250	6	6.1667	1	6.5000
60-62 400 e.p. gasoline	2	6.7500	2	6.8750	5	6.7500
64-66 375 e.p. gasoline	2	7.5000	1	7.7500	1	7.7500
*58-60 437 e.p. gasoline	..	5.875–6.50	..	5.875–6.50	..	5.75–6.50

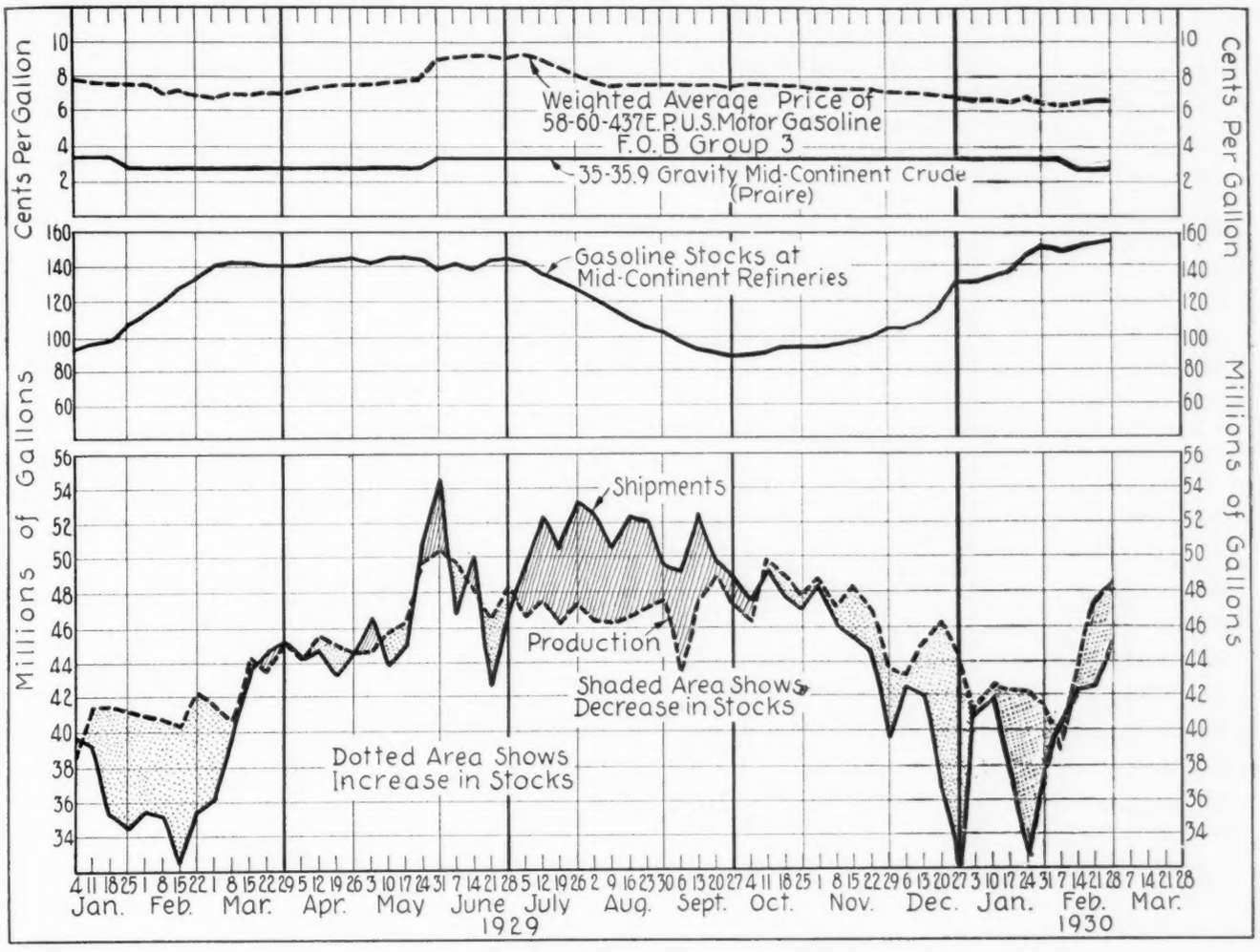
KANSAS

	Mar. 3		Feb. 24		Feb. 17	
	No. of cars	Price	No. of cars	Price	No. of Cars	Price
58-60 U. S. Motor, 437 e.p.	No sales reported		1	6.5000	No sales reported	

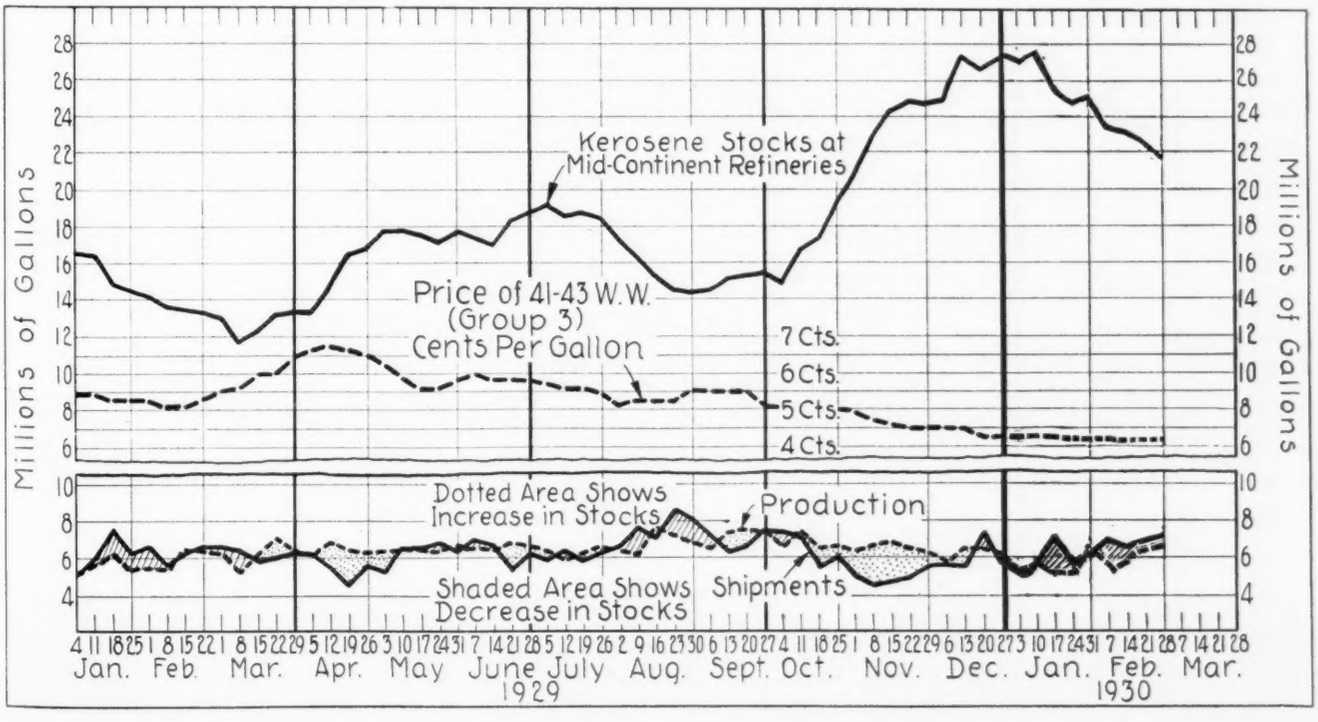
*Full U. S. Motor specifications not guaranteed. Prices represent both quotations and sales.

Barometer of Mid-Continent Refinery Market—Week Ending February 28

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Cents Per Gallon
Weighted Average Price of 58-60-437 E.P.U.S. Motor Gasoline F.O.B Group 3
35-35.9 Gravity Mid-Continent Crude (Praire)
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Shipments
Production
Shaded Area Shows Decrease in Stocks
Dotted Area Shows Increase in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and ***Production are extended to date*** *as shown in the table on page 90*


Millions of Gallons
Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W. (Group 3) Cents Per Gallon
7 Cts.
6 Cts.
5 Cts.
4 Cts.
Dotted Area Shows Increase in Stocks
Production
Shaded Area Shows Decrease in Stocks
Shipments
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Mar. 3	Prices Feb. 24	Prices Feb. 17
48-50 450 e.p. naphtha...	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
50-52 450 e.p. naphtha...	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
56-58 450 e.p. gasoline...	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25
58-60 450 e.p. gasoline...	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25
64-66 390 e.p. gasoline...	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
68-70 350-360 e.p. gasoline	7.875– 8.25	7.875– 8.25	7.875– 8.25

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha.....	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
54-56 Naphtha.....	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
58-60 U.S. Motor 437 e.p.	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
60-62 400-410 e.p. gasoline	7.625– 8.00	7.75 – 8.125	7.75 – 8.12?
64-66 390 e.p. gasoline....	8.00 – 8.50	8.00 – 8.50	8.125– 8.50
68-70 350-360 e.p.....	8.50 – 9.50	9.00 – 9.50	9.00 – 9.50

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline

Ohio, delivery at any point.....	9.50	9.50	9.50

KANSAS (F. o. b. refinery Kansas destination)

60-62 437 e.p. gasoline...	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
60-62 400 e.p. gasoline...	6.75 – 7.50	6.75 – 7.50	6.75 – 7.50
64-66 375 e.p. gasoline...	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline...	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
58-60 450 e.p. gasoline...	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
58-60 U.S. Motor 437 e.p.	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
60-62 400 e.p. gasoline...	6.125– 6.25	6.125– 6.50	6.125– 6.50
64-66 390 e.p. gasoline...	6.75 – 7.00	6.875– 7.25	6.875– 7.25
64-66 375 e.p. gasoline...	7.50	7.50 – 7.75	7.50 – 7.75
68-70 350-360 e.p. gasoline	7.75	7.75 – 8.00	7.75 – 8.00

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha.....	5.25	5.25	5.25
58-60 437 e.p. gasoline...	5.75	5.75	5.75
58-60 U.S. Motor 437 e.p. gasoline.....	6.00	6.00	6.00

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor gasoline	6.50	6.50	6.50

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	6.50	6.50	6.50

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	8.50 –10.00	8.00 – 9.25	8.50 – 9.50
54-58 U.S. Motor, for outside state shipment....	7.00 – 8.00	6.50 – 7.25	6.50 – 7.25
58-61 375-400 e.p. gasoline	9.50 –11.00	9.00 –10.25	9.50 –10.50
42-45 Engine Distillate 445-480 e.p.....	7.00 – 8.00	7.00 – 7.50	7.50 – 8.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery.....	5.375– 5.50	5.375– 5.50	*5.25 – 5.375
Grade A, 72-79.9, 90% Recovery.....	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Grade BB, 84-92, 85% Recovery.....	4.375– 4.50	4.50	4.25
Grade B, 76-83.9, 85% Recovery.....	4.50	4.50	4.50
Grade C, 80-92, 78% Recovery.....	4.375– 4.50	4.50	4.00 – 4.25

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery.....	5.375– 5.50	5.375– 5.50	*5.25 – 5.375
Grade A, 72-79.9, 90% Recovery.....	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Grade BB, 84-92, 85% Recovery.....	4.375– 4.50	4.50	4.25
Grade B, 76-83.9, 85% Recovery.....	4.50	4.50	4.50
Grade C, 80-92, 78% Recovery.....	4.375– 4.50	4.50	4.00 – 4.25

NORTH LOUISIANA (F. o. b. Monroe District)

	Prices Mar. 3	Prices Feb. 24	Prices Feb. 17
Grade AA.....	†5.50	†5.50	†5.50
Grade BB.....	†4.50	†4.50	†4.50
Grade C.....	†4.375	†4.375	†4.375

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. blend	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosene.....	5.875– 6.00	5.875– 6.00	5.875– 6.00
46 w.w. kerosene.....	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
47 w.w. kerosene.....	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
300 mineral seal.....	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosene.....	4.125– 4.375	4.125– 4.375	4.125– 4.25
42-44 w.w. kerosene.....	4.375– 4.50	4.375– 4.50	4.375– 4.50

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosene.....	5.00	4.375– 4.75	4.125– 4.75
42-44 w.w. kerosene.....	5.00 – 5.25	4.75 – 5.00	4.375– 4.875

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosene.....	4.00	3.75 – 4.00	3.75 – 4.005
41-43 w.w. kerosene.....	4.125– 4.25	4.00 – 4.125	4.00 – 4.12

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosene.....	5.00	5.00	5.00
42-44 w.w. kerosene.....	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25

ARKANSAS (Ark., N. La. and Miss. destination)

42-44 w.w. kerosene.....	5.25	5.25	5.25

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosene.....	4.50 – 5.50	4.00 – 5.00	4.00 – 5.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.	(Viscosity at 70° F.)		
200 No. 3 Assoc. Filt.....	25.00 –26.00	25.00 –26.00	25.00 –26.00
180 No. 3 Assoc. Filt.....	21.00 –22.50	21.00 –22.00	20.50 –22.00
150 No. 3 Assoc. Filt.....	15.75 –17.00	15.75 –17.00	16.00 –17.00
	(Non Viscous)		
34 Grav. 330-340 Flash..	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50

****OKLAHOMA** (F. o. b. Oklahoma refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 2.....	6.00 – 7.50	6.00 – 7.50	6.00 – 7.50
150—No. 3.....	7.75 – 8.50	7.75 – 8.50	7.75 – 8.50
150—No. 4.....	6.75 – 8.00	6.75 – 8.00	6.75 – 8.00
180—No. 3.....	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4.....	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
180—No. 5.....	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
200—No. 3.....	11.00 –12.50	1.00 –12.50	11.00 –12.50
200—No. 4.....	10.00 –11.00	10.00 –11.00	10.00 –11.00
200—No. 5.....	9.50 –11.00	9.50 –11.00	9.50 –11.00
220—No. 3.....	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4.....	12.00 –12.50	12.00 –12.50	12.00 –12.50
220—No. 5.....	11.00 –12.00	11.00 –12.00	11.00 –12.00
240—No. 3.....	13.00 –15.00	13.00 –15.00	13.00 –15.00
240—No. 4.....	12.00 –13.50	12.00 –13.50	12.00 –13.50
240—No. 5.....	11.00 –13.00	11.00 –13.00	11.00 –13.00
280—No. 3.....	16.00 –17.00	16.00 –17.00	16.00 –17.00
280—No. 4.....	14.00 –16.00	14.00 –16.00	14.00 –16.00
280—No. 5.....	13.00 –15.00	13.00 –15.00	13.00 –15.00

†Prices nominal ††Only one refiner quoting *Quotations only **Represents Both Sales and Quotations.

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis.	Color	Prices Mar. 3	Prices Feb. 24	Prices Feb. 17
		(Viscosity at 100° F., pour test 0)		
100	No. 2 Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200	No. 3 Pale	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
300	No. 3 Pale	10.75 –11.00	10.75 –11.00	10.75 –11.00
500	No. 3½ Pale	12.00 –12.25	12.00 –12.25	12.00 –12.25
750	No. 4 Pale	13.50 –13.75	13.50 –13.75	13.50 –13.75
1200	No. 5 Pale	16.00 –16.50	16.00 –16.50	16.00 –16.50
200	No. 5½ Red Oil	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
300	No. 5½ Red Oil	10.00 –10.25	10.00 –10.25	10.00 –10.25
500	No. 6 Red Oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
750	No. 6 Red Oil	12.75 –13.00	12.75 –13.00	12.75 –13.00
1200	No. 5-6 Red Oil	15.00 –15.25	15.00 –15.25	15.00 –15.25

‡CALIFORNIA (F. o. b. California refineries)

Vis.	Color	(Viscosity at 100° F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

‡Neutral oils not manufactured commercially in California.

CYLINDER STOCKS

****OKLAHOMA** (F. o. b. Oklahoma refineries)

190-200 Vis. D at 210° Brt. St.	41.00 –42.00	41.00 –42.00	41.00 –42.00
150-160 Vis. D at 210° Brt. St.	37.00	37.00	37.00
150-160 Vis. E 210° Brt. St.	35.00 –36.00	35.00 –36.00	35.00 –36.00
600 St. Ref. Olive Green	9.00 –10.00	9.00 –10.00	9.00 –10.00
600 St. Ref. Dark Green	9.00	9.00	9.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	24.00 –25.00	23.50 –25.00	23.50 –24.50
650 Steam Refined	30.00 –31.00	30.00 –31.00	29.50 –31.00
600 Flash	31.50 –33.00	31.00 –33.00	31.00 –33.00
630 Flash	35.00 –36.50	35.00 –36.00	35.00 –36.00
600 Warren E	30.00 –31.00	29.50 –31.00	30.50 –31.00
600 Oil City E	28.50 –30.00	28.50 –30.00	29.50 –30.00
600 D Filtered	34.50 –35.00	34.50 –35.00	34.50 –35.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	39.50 –41.00	40.00 –41.50	40.00 –42.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	38.50 –39.00	39.00 –40.00	39.00 –40.00

WAX

PENNSYLVANIA (Per pound, New York)

122-124 white crude scale, a.m.p.	3.00	3.00 – 3.125	3.00 – 3.125
124-126 white crude scale, a.m.p.	3.00	3.00 – 3.125	3.00 – 3.125

****OKLAHOMA** (F. o. b. Oklahoma refineries)

124-126 White Crude Scale, a.m.p.	2.75 – 3.125	2.75 – 3.125	2.75 – 3.125

CALIFORNIA (F. o. b. California refineries)

White crude scale, per pound, ton lots, a.m.p.	.....	.....	6.00 – 6.50

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	4.50 – 5.00	4.625– 5.00	4.75 – 5.00
30-34 fuel oil	4.50 – 4.75	4.625– 4.75	4.625– 4.875
28-32 fuel oil	4.50 – 4.75	4.625– 4.75	4.625– 4.875

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Mar. 3	Prices Feb. 24	Prices Feb. 17
38-40 straw distillate	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
36-38 straw distillate	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 straw gas oil	3.00	3.00	3.00
32-36 straw gas oil zero	3.25	3.25	3.25
32-36 dark gas oil	2.50 – 2.75	2.625– 2.75	2.625– 2.875
32-36 dark gas oil zero	2.875– 3.125	2.875– 3.125	3.00 – 3.25
28-30 zero fuel oil (per bbl.)	$1.05 – 1.10	$1.10 – 1.15	$1.125– 1.175
28-30 fuel oil (per bbl.)	$1.00 – 1.05	$1.05 – 1.10	$1.05 – 1.15
26-28 fuel oil (per bbl.)	$0.85 – 0.95	$0.90 – 0.975	$0.90 – 1.00
24-26 fuel oil (per bbl.)	$0.825– 0.875	$0.875– 0.925	$0.875– 0.925
22-26 fuel oil (per bbl.)	$0.80 – 0.85	$0.85 – 0.90	$0.85 – 0.90
18-22 fuel oil (per bbl.)	$0.725–$0.825	$0.775– 0.875	$0.80 – 0.90
16-20 fuel oil (per bbl.)	$0.675– 0.725	$0.70 –$0.75	$0.70 – 0.80
14-16 fuel oil (per bbl.)	$0.675–$0.725	$0.70 –$0.75	$0.70 – 0.80

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	3.625– 4.00	3.625– 4.00	3.625– 4.00
36-38 straw distillate	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
32-36 straw gas oil	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
18-22 fuel oil (per bbl.)	$0.85 – 0.90	$0.85 – 0.90	$0.85 – 0.90
10-14 fuel oil (per bbl.)	$0.825– 0.875	$0.825– 0.875	$0.825– 0.875

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
38-40 p.w. treated distillate	3.50	3.50 – 3.625	3.50 – 3.625
32-36 gas oil, cracked	2.50	2.75	2.75
32-36 St. reduced gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
24-26 fuel oil (per bbl.)	$0.60 – 0.70	$0.60 – 0.70	$0.70
20-24 fuel oil (per bbl.)	$0.60	$0.60	$0.60 – 0.70
18-22 fuel oil (per bbl.)	$0.55 –$0.60	$0.55 – 0.60	$0.60 – 0.65

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

34-38 gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
30-32 gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
28-30 zero gas oil	2.50 – 2.875	2.50 – 2.875	2.50 – 2.875
18-22 fuel oil (per bbl.)	$0.60 – 0.80	$0.60 – 0.80	$0.60 – 0.80

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	3.25 – 3.50	3.50	3.50
32-36 gas oil, straw	3.25	3.25	3.25
14-16 fuel oil (per bbl.)	$0.80 – 0.85	$0.80 – 0.85	$0.80 – 0.85

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	3.50	3.50	3.50
32-36 dark gas oil	3.50	3.50	3.50
28-30 gas oil	3.25	3.25	3.25
20-24 fuel oil (per bbl.)	$0.95	$0.95	$0.95
9-12 fuel oil (per bbl.)	$0.75	$0.75	$0.75
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. At San Francisco 4c per bbl. more)

14-18 fuel oil (per bbl.)	$0.45 –$0.65	$0.40 –$0.55	$0.40 –$0.50
14-18 Bunker oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
30-34 gas oil (per bbl.)	$0.70 –$0.90	$0.70 –$0.90	$0.70 –$0.90
27 Plus Diesel oil (per bbl.)	$0.70 –$0.90	$0.70 –$0.90	$0.70 –$0.90

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. refinery. In tank cars ⅛c to ¼c per pound less.) Two refiners quoting.

Snow White	8.25 – 8.50	8.25 – 8.50	8.25 – 8.75
Lily White	7.25 – 7.50	7.25 – 7.50	7.25 – 7.75
Cream White	6.25 – 6.50	6.25 – 6.50	6.25 – 6.75
Light Amber	3.50 – 3.625	3.50 – 3.625	3.50 – 3.75
Amber	3.25 – 3.375	3.25 – 3.375	3.25 – 3.50
Red	3.00	3.00	3.00 – 3.25

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

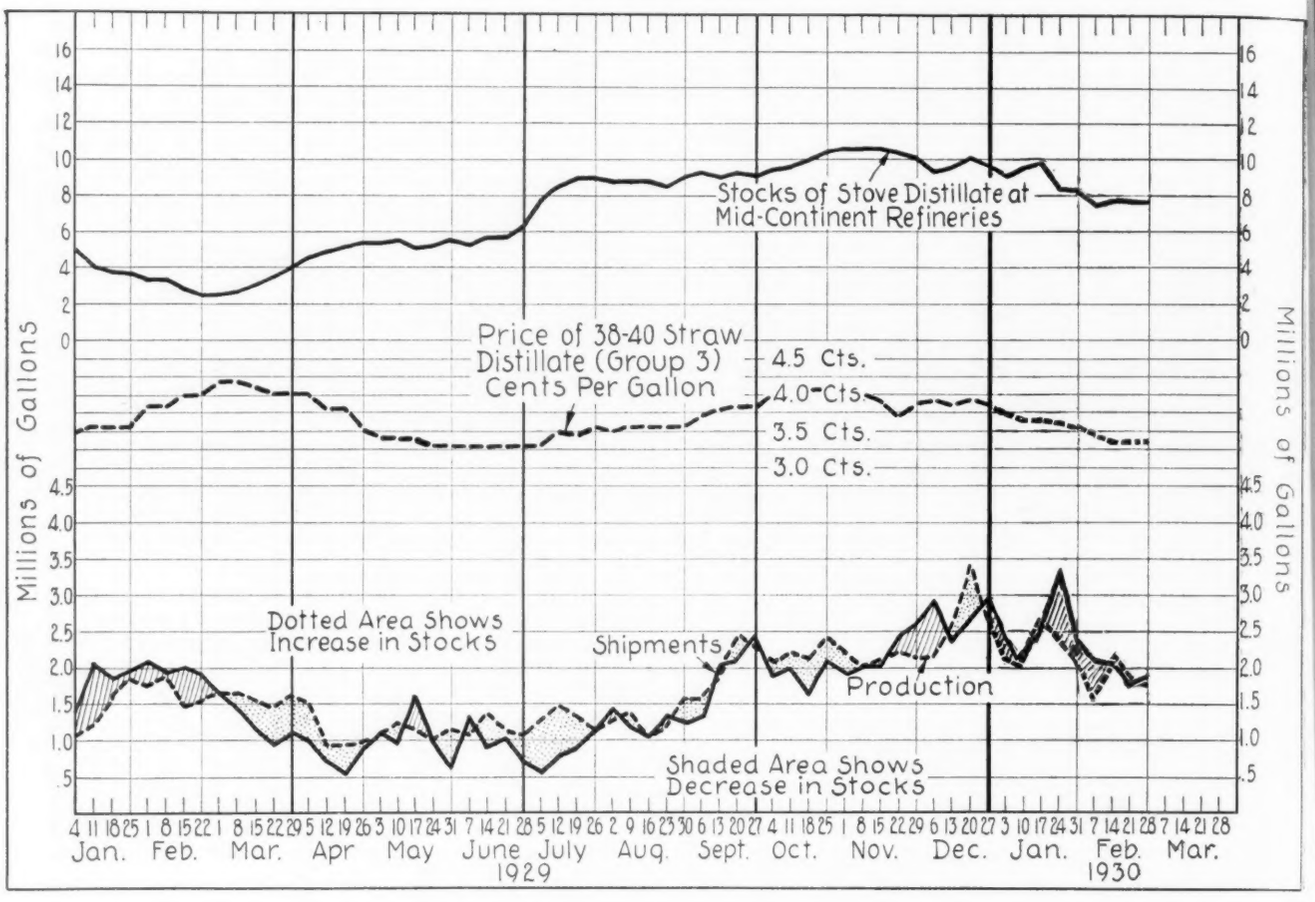
(Per ton in car lots)

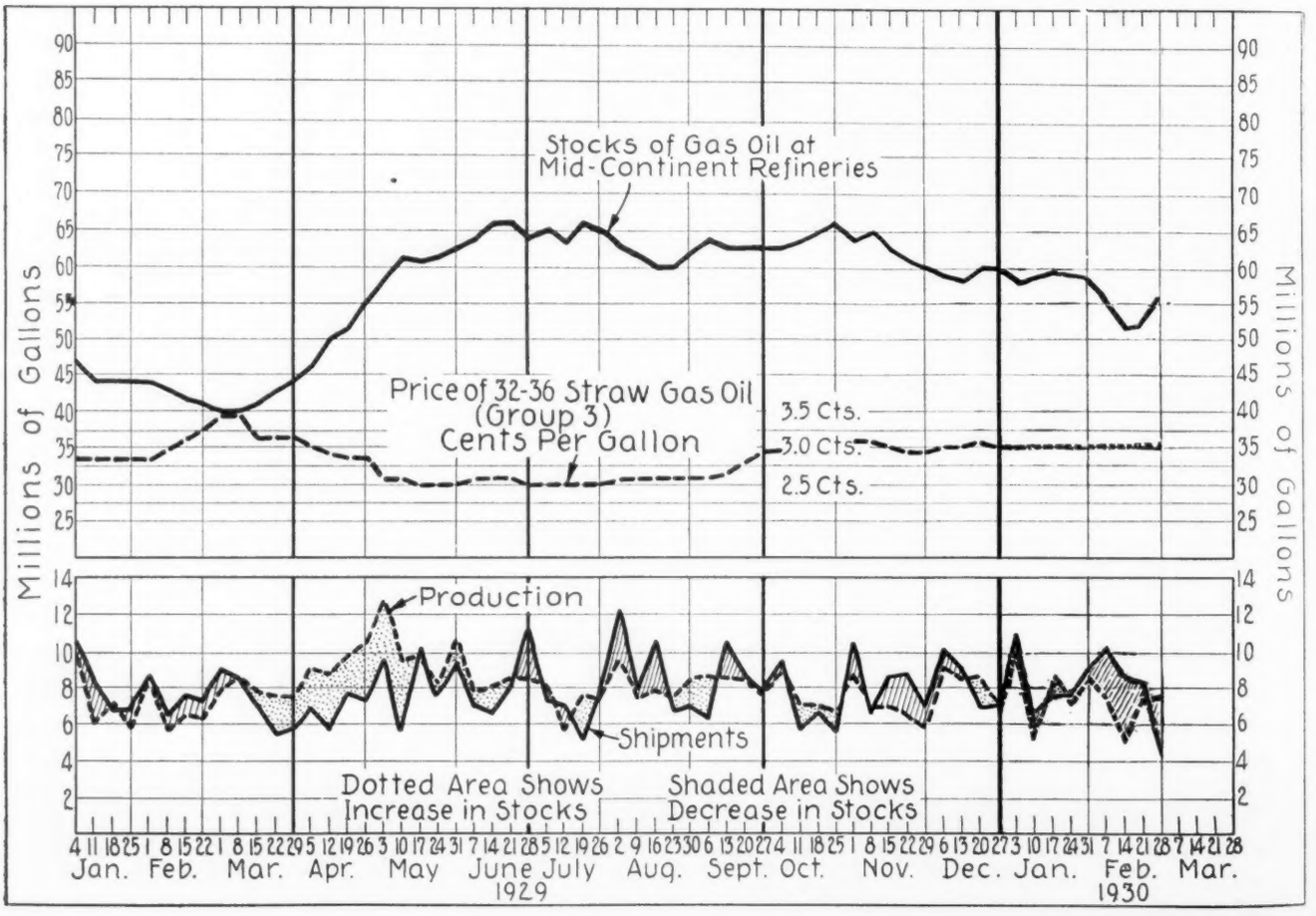
Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

****Represents Both Sales and Quotations.**

Barometer of Mid-Continent Refinery Market—Week Ending February 28

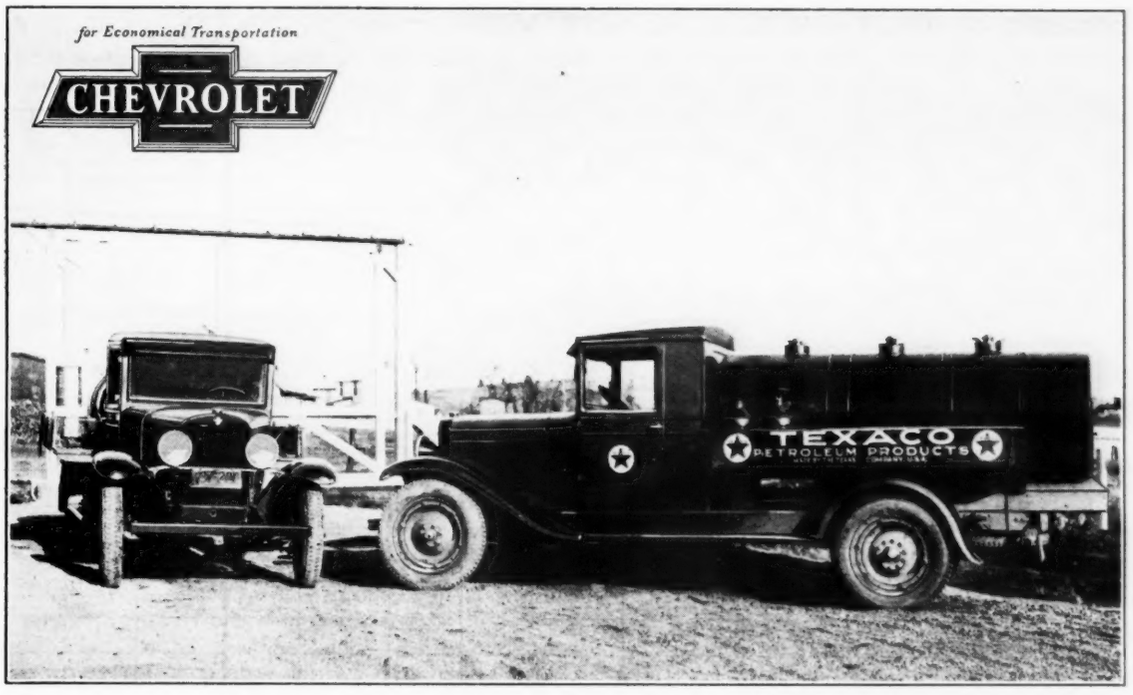
Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Millions of Gallons
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
4.5 Cts.
4.0 Cts.
3.5 Cts.
3.0 Cts.
Dotted Area Shows Increase in Stocks
Shipments
Production
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930


Millions of Gallons
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Straw Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Production
Shipments
Dotted Area Shows Increase in Stocks
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930

for Economical Transportation

CHEVROLET



Greater Power, Strength and Durability

· · at greatly reduced prices!

In every section of America, the new Chevrolet six-cylinder trucks are constantly winning greater favor every day. And logically so! For in these new and finer trucks—Chevrolet has provided feature after feature that adds to performance, economy and dependability. *Yet the prices have been greatly reduced!*

Think of the extra-value features now incorporated in these remarkable new units—

—a great 50-horsepower six-cylinder valve-in-head motor that delivers greater power, smoothness and flexibility, with amazing economy of both gasoline and oil—

—a bigger, more rugged rear axle, with an increased gear ratio—

—powerful, non-locking 4-wheel brakes—

—unusually long semi-elliptic springs that cushion the load against bumps and shocks—

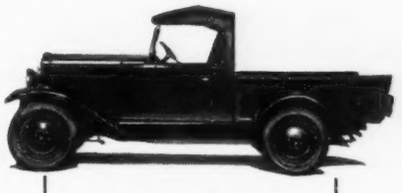
—a heavy, over-size channel-steel frame that accommodates large bodies without need of frame extension—

—and scores of additional advancements that add to strength, durability and long life.

See your Chevrolet dealer today—arrange for a trial load demonstration—and judge for yourself the greater value these new trucks represent!

1½ Ton Utility Chassis $520
1½ Ton Chassis with Cab $625
Light Delivery Chassis $365
The Sedan Delivery $595

All prices f. o. b. factory, Flint, Michigan



The New Chevrolet Roadster Delivery

The new Chevrolet Roadster Delivery with its low price, smart appearance and large loading space, is an exceptionally desirable unit for light delivery service.

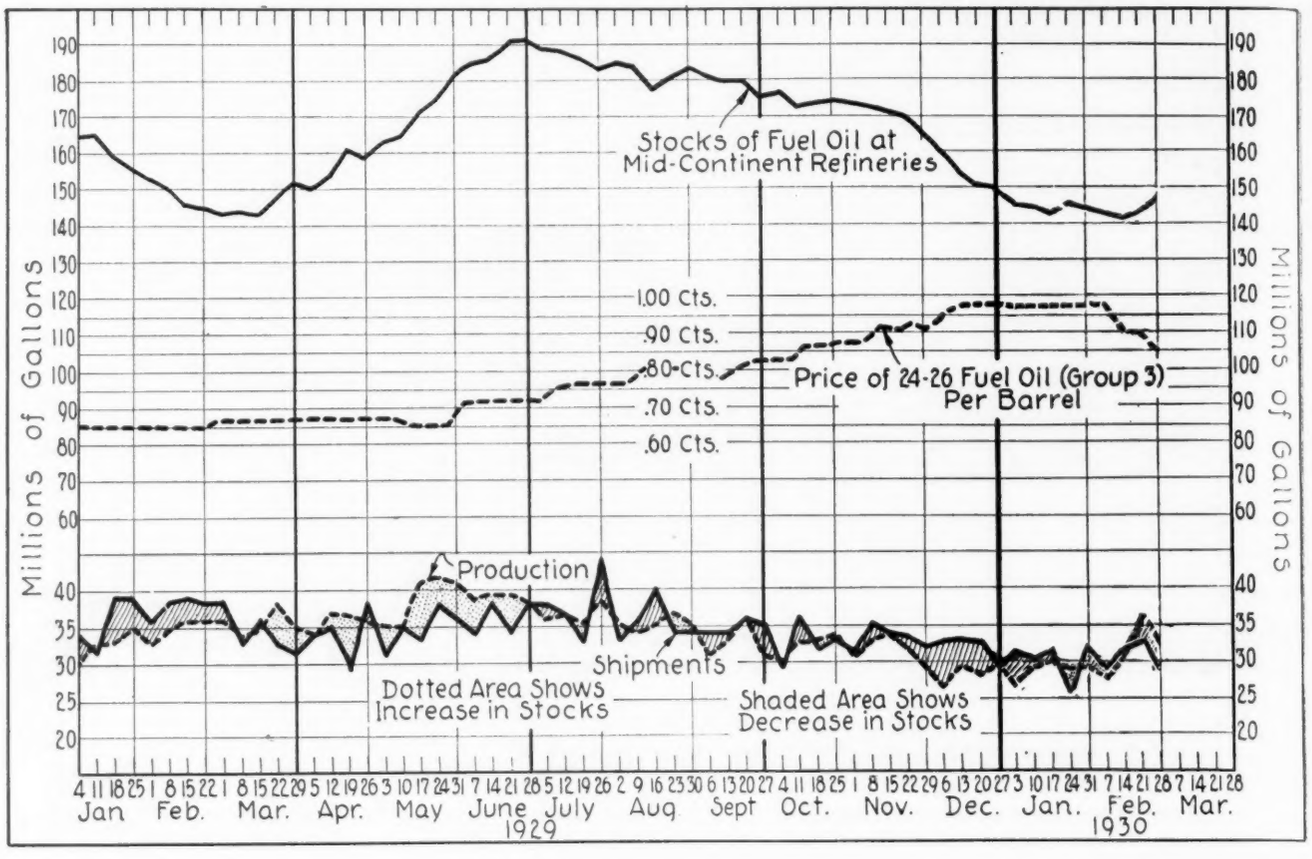
$440
f. o. b. factory
Flint, Michigan
(Pick-up box extra)

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
Division of General Motors Corporation

A SIX IN THE PRICE RANGE OF THE FOUR

Barometer of Mid-Continent Refinery Market—Week Ending February 28

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



Shipments From Southern California

LOS ANGELES, Feb. 26.—Shipments of bulk petroleum products from Southern California ports for week ended Feb. 22 were as follows: (Barrels)

Destination	Crude	Gasoline	Diesel Distillate	Kerosene	Fuel	Gas-Oil
Pacific For.	65,574	10,714	93,822	.....	359,791	.....
Atlantic Dom.	.....	192,296	.....	72,761	.....	.....
Atlantic For.	.....	354,177	.....	24,811	.....	.....

California Refinery Market

Gasoline Stocks Rise; Trade Alarmed

LOS ANGELES, March 1

FACED with the fact that stocks of crude and refined oils on the Pacific Coast increased 1,530,390 barrels during the month of January, of which amount 1,366,184 barrels was gasoline, California marketing officials the past week were seriously debating ways and means of either increasing the sale of refined products or of reducing runs to stills.

In view of the present low gasoline prices on the Atlantic seaboard and with tanker rates in the neighborhood of 2.50 cents per gallon, local exporters were not very optimistic concerning immediate spot sales to eastern buyers.

The fact that there were very few promising inquiries during the past week was taken to indicate that export business during the coming week would be equally inactive and a turn for the better is not expected until tanker rates ease off.

With rumors of a cut in the price of gasoline heard on all sides, jobbers on the Pacific Coast continued to hesitate to take on any large quantities of this commodity. Spot sales of other oils also were at a minimum.

Notwithstanding the feeling of an impending reduction in the price structure, several dealers reported a slightly higher price for U. S. Motor to be used within the state. A few spot sales were made as low as 8 cents, tax not included, but a majority of the sales were made at between 9 and 10 cents per gallon.

Quotations on gasoline to be used outside the state ranged from 7 to 8 cents with several tank cars reported sold at as low as 6.50 cents.

Some of the trade reported that natural gasoline was being shaded by one of the major companies and that it could be bought for as low as 7.75 cents per gallon; quotations, however, ranged from 8 to 9 cents.

The ability of several independent companies to buy casing head gasoline at low prices to blend with their straight run goods was thought to have been a contributing factor to the increase noted during the past week in the amount of cut-rate motor fuel available in Southern California.

Considerable distress fuel oil, unloaded on the market by small refiners who must sell their accumulation of this commodity in order to operate their stills continuously, depressed the domestic market.

Although a number of the major

companies posted a price of $0.85 per barrel for fuel oil, f.o.b. San Pedro harbor, there was a considerable quantity available at less than $0.50 per barrel.

Other refinery products remained unchanged during the past week.

Pennsylvania Market

Trading Continues Quiet

CLEVELAND, March 3.—Western Pennsylvania refinery markets continued exceptionally quiet last week, with trading of all commodities practically at a standstill. A few changes were spotted in various sections of the refined oil price list, but the market as a whole didn't lose much ground as a result of the inactivity.

Despite the colder weather which spread over the Pennsylvania consuming territory, fuel oils lagged and prices toward the end of the week dropped 0.125 cent on the lows of price ranges. The 36-40, 30-34 and 28-32 gravity grades were offered in small lots from several districts at 4.50 cents against a minimum of 4.625 cents asked by sellers during the early days of the week.

A number of refiners continued to ask higher prices for fuel oil and in some instances a fair volume of sales were reported.

The leader among gasolines, 58-60 U. S. Motor, held its own pretty well, the price range for this grade continuing at 7.50 to 7.75 cents, but the lighter grades eased off 0.125 to 0.25 cent. Distress gasoline continued to play a minor part in the market.

Bright stock demand still was disappointing, according to a majority of sellers of this commodity. Buying from the general run of jobbers for spring requirements hasn't put in its appearance as yet. More material was offered in the open market last week and some sellers were accepting orders at prices 0.50 cent lower.

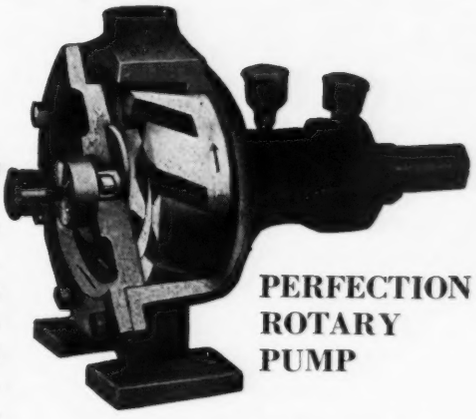
An occasional lot of filterable 600 steam refined cylinder stock was offered at 23.50 cents last week but for the most part sellers were asking 24 to 25 cents and they reported little difficulty in getting these prices for the small lots they had to offer in the open market.

Kerosene, neutral oils, filtered cylinder stocks and wax were generally unchanged in price.

ARDMORE, Pa.—The Autocar Co., motor truck manufacturer with headquarters here, has appointed Crawford Brown as manager of the company's Bronx, N. Y. direct factory branch.

JI

HELICAL GEARS



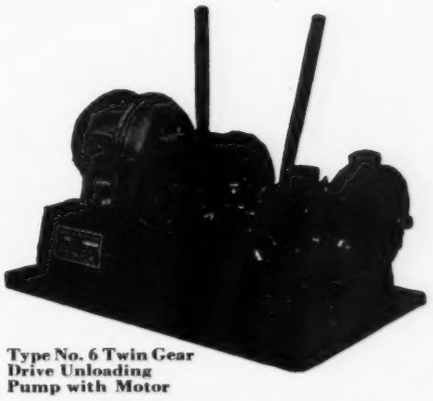
PERFECTION ROTARY PUMP

HELICAL gears prevent back lash . . . run smoother and easier than straight spur gears . . . last longer. That's why this type of gear is used almost exclusively in power transmission machinery today. It is why helical gears are used in the Perfection Rotary Pump.

There is no vibration... no shock...no strain in the operation of the Perfection Rotary Pump. It runs smoothly and noiselessly. The pressure of the liquid passing through the pump balances equally with the end-thrust of the helical gears. This balanced pressure minimizes wear. Perfection Rotary Pumps therefore operate efficiently even after years of service.

HELICAL GEARS MEAN LESS POWER

The Perfection Rotary Pump is the only one on the market with helical gears. These gears make a shearing cut on the flow of liquid passing through the pump. In other words, the teeth of the rotor work on an angle and slice the stream instead of splashing into it head on. This eliminates shock and vibration in the pump and results in smooth operation with less power. Write today for complete information.



Type No. 6 Twin Gear Drive Unloading Pump with Motor

PERFECTION MANUFACTURING COMPANY

2194 EAST HENNEPIN AVENUE .... MINNEAPOLIS, MINN.

Eastern Domestic Markets

Tank Wagon Cuts Depress Spot Business

Staff Special
NEW YORK, March 1.

GASOLINE and kerosene were unsettled in several eastern markets the past week; prices were lower at New York and Philadelphia. Spot gasoline business which had picked up somewhat a week ago at New York slackened the past week, due to pressure of lower tank wagon prices and competition from contract shipments.

The U. S. Motor price range at New York widened to 8 to 8.50 cents and at Philadelphia to 8.25 to 8.50 cents. Kerosene prices at both points were down 0.25 cent on the lows of price ranges. Prices in other districts were unchanged.

The U. S. Motor price range at New York widened to include the 8-cent quotation March 1. According to the trade it was largely the result of the 1-cent reduction in tank wagon and service station gasoline prices made in New York City Feb. 26 by the Standard of New York. Under the new postings, Standard's tank wagon price in New York City is 12.3 cents per gallon, exclusive of tax. Dealers getting a 3 cent discount under posted tank wagon have a net tank wagon price of 9.3 cents.

The movement of contract gasoline, affected by lower tank wagon prices, also was reflected in refiner's tank car quotations, the trade reported. In upper New York state contract gasoline was moving under the "4 and 1" clause at approximately 8.50 cents, exclusive of freight, but in a number of instances the freight was scarcely more than a shipping charge. Consequently in these districts, many of which are considered as their normal marketing territory by New York harbor suppliers, shipments of spot gasoline have been virtually eliminated. Several sellers said their shipments were now going principally into western New York and New Jersey and points near the harbor.

Competition from New York at lower prices brought a reduction in Philadelphia refiners' quotations early in the week. There was some shading of 8.25 cents but the trade reported it had not been sufficiently great to cause further reductions in prices.

California gasoline prices were at last week's levels at all points but some of the trade believed there might be some recessions due to lower U. S. Motor prices at New York and Philadelphia. Suppliers reported spot business slow although one seller in the Baltimore district reported selling 90 cars for shipment over March at 8.50 cents.

There was a report, which lacked confirmation, that a cargo of unsold gasoline was on its way around from the west coast. According to the trade this shipment was offered early in the week at 7.625 cents, c.i.f. the east coast and later a report was heard that it had been sold under that figure. In view of the condition of east coast and California gasoline markets some of the trade believed 7.625 cents, delivered, might be shaded.

Kerosene prices at New York and Philadelphia, as quoted by refiners were 7.50 to 7.75 cents. One New York seller was disposing of some kerosene at 7.25 cents, he reported, but he was not making that a general price. Suppliers in all districts reported orders were few and in view of the proximity of warmer weather they were expecting lower prices.

Gulf Coast Markets

Association Reduces Its Posted Prices

Staff Special
NEW YORK, March 1

INTEREST in Gulf export markets perked up the past week following the reduction of prices posted by the Export Petroleum Association for gasoline and kerosene. Two cargoes of light oils purchased by a French buyer at less than Association prices and inquiries in the market for two more cargoes were the occasion for considerable comment.

Effective Feb. 27, the Export association reduced gasoline prices 0.50 cent and kerosene prices 1 cent. New prices are: U. S. Motor gasoline, 8 cents; 60-62, 400 end point gasoline, 9 cents; 61-63, 390 end point gasoline, 9.25 cents; 64-66, 375 end point gasoline, 9.50 cents; 41-43 prime white kerosene, 6 cents; and 44 gravity water white kerosene, 7 cents.

Gasoline prices in effect prior to the reduction of the past week were established by the Association on Jan. 19, 1929. On the same date bulk kerosene prices were posted at 7.75 cents and 6.75 cents, respectively, for water white and prime white. These were in effect until March 20, 1929, when they were advanced 1 cent. In June, 1929, kerosene prices only were reduced 0.75 cent to the levels in effect prior to the reduction of the past week.

Early in the week the French subsidiary of a leading American independent refiner purchased two cargoes of gasoline and kerosene, one to consist of approximately 65,000 barrels of U. S. Motor, 64-66, 375 end point gasoline, prime white and water white kerosene for March 15-April 15 loading at the Gulf, and the other to consist of approximately 70,000 barrels of U. S. Motor and 64-66, 375 end point gasoline to be loaded a month later.

The business was said to have been handled through a London concern which, the trade reported, had made several so called "bootleg" purchases in the Mid-Continent. Early reports of prices received by a New York company through its London office indicated that 8 cents had been paid for U. S. Motor, 9.50 cents for the 375 end point gasoline and "under 6.75 cents and 7.75 cents" for the kerosenes. Later in the week it was learned definitely that the buyer had paid 6.25 cents and 7.25 cents, respectively, for the two grades of kerosene.

Inquiries for two additional cargoes totaling 125,000 barrels of 60-62, 400 end point gasoline, one to be loaded in April and the other in June, were in the market from the same London trader for the account of a French buyer. As far as could be learned this business had not been placed up to the end of the week.

The New York trade does not look for a substantial increase in foreign buying as a result of the lower prices posted by the Association. Several purchases have been made since the first of the year and they believe foreign buyers have sufficient material in storage now to care for their spring requirements. Several traders believed there would be no more than an occasional inquiry until late in April. Trans-Atlantic tanker rates were easier, several of the trade reported, which indicated that there was less interest shown in future charters.

Wax Markets

Scale Prices Lower at Gulf

NEW YORK, March 1.—Wax markets at the Gulf and New York again failed to display any feature of interest the past week. Prices for white crude scale were lower at the Gulf but were unchanged at New York. One grade of fully refined wax was quoted lower at New York at the end of the week.

The majority of suppliers reported very little interest was shown in United States markets from abroad, particularly with regard to white crude scale. One seller reported a few sales of fully refined wax to United Kingdom accounts at current prices and one or two others received bids which were lower than they cared to accept. These bids and sales were for small lots. Several of the trade reported a fair demand from the domestic paper trade some of which were preparing for increased consumption of paper cups, etc., in the coming summer months.

White crude scale was available at 2.875 cents at the Gulf and was freely offered at 3 cents at the end of the week. Early in the week some sales were made at 2.90 cents but these were infrequent and not representative of the market. The lower-priced wax was in the hands of dealers, the trade said, many of whom were quoting goods which they had purchased some weeks ago. Fully refined waxes were unchanged in price at the Gulf and transactions were few.

One lot of 50 tons of white crude scale was reported sold from New York to the United Kingdom early in the week at 2.90 cents, f.o.b. New York harbor, but this sale lacked confirmation. A report that a refiner had quoted 2.95 cents per pound f.o.b. New York later in the week also lacked confirmation.

The movement of fully refined waxes from New York against contracts, both to domestic and foreign consumers, was fair; it was sufficiently large in volume to hold prices of the majority of grades at the previous week's levels. Stocks of 133-135 A.m.p. were larger, some of the trade said, and quotations were down 0.125 cent.

The opinion held generally by the New York trade was that there is nothing apparent now to cause optimism in wax markets in the immediate future. Unsettled conditions abroad have cut down foreign consumption with the result that stocks are ample to cover requirements until April the trade said.

Don't Be Misled By Claims—Insist Upon Facts and Proof

NO ROOM FOR CONTROVERSY

When You Compare 'Daytons' With Any Other Two-Stage.

THE type of Two-Stage Air Compressor which is illustrated below is satisfying fully the needs of all average size filling stations. The Dayton 'G-8' has won its spurs in competition with other compressors, because it is the only two-stage compressor in the world, built without the parts which cause trouble by breaking loose and scoring the cylinder.

No Connecting Rods—

No Cotter Pins—

No Crosshead Pins—

No Bolts—

Nothing to cause delay in operation. No 'Out of Order' sign necessary.

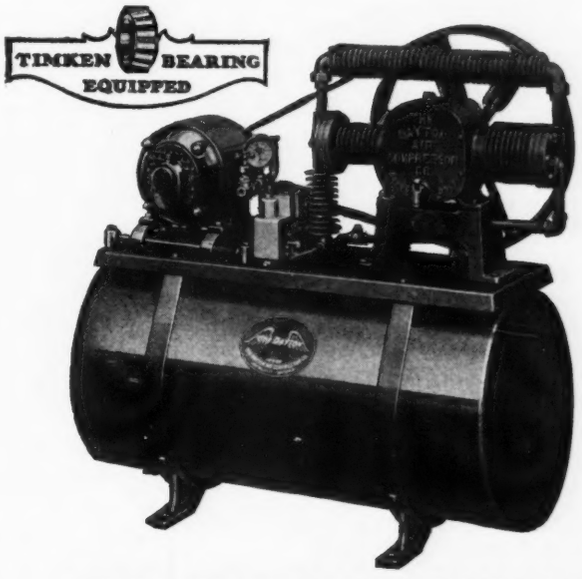
THE DAYTON 'G-8'

Has a 2 H.P. Motor—

A 60 gallon tank—

Produces 8 cubic feet of clean air a minute—150 lbs. capacity

Built to fill the need of the average one-stop or super service station.



An Air Compressor Is Only As Strong As Its Weakest Part.

There are No Weak Parts In The 'G-8'

The LUCAS PUMP & TOOL COMPANY DAYTON, OHIO.

DAYTON AIR COMPRESSORS

425 Valley Street **Dayton, Ohio**

STEEL
DRUM ACCESSORIES
CORPORATION

Buffalo, New York

Specialists in Drum Faucets and Gates

Specify
the "BLUE" *Gate*
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for all purposes.
We solicit your inquiries for detail information.

Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

U. S. MOTOR GASOLINE	Mar. 3	Feb. 24	Feb. 17
New York harbor	8.00 – 8.50	8.25 – 8.50	8.25– 8.50
Portland district	**10.30–10.50	**10.30–10.50	**10.30–10.75
Boston district	*10.00	*10.00	**10.00–10.25
Providence district	*10.00	*10.00	**10.00–10.25
Philadelphia district	8.25 – 8.50	8.50	8.50– 8.75
Baltimore district	8.50	8.50	8.50– 8.75
Norfolk district	8.50	8.50	8.50– 8.75
Charleston district	8.50	8.50	8.50– 8.75
Savannah district	8.50	8.50	8.50– 8.75
Jacksonville district	8.50	8.50	8.50– 8.75
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	8.50 – 8.75	8.50 – 8.75	8.75
Philadelphia district	8.50	8.50	8.50 – 8.75
Baltimore district	8.50 – 8.75	8.50 – 8.75	8.50 – 8.75
WATER WHITE KEROSENE			
New York harbor	7.50 – 7.75	7.625– 7.75	7.625– 7.75
Philadelphia district	7.50 – 7.75	7.75	7.75
Baltimore district	7.75	7.75	7.75
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
Boston district	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Boston district	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
GRADE C BUNKER OIL†			
New York Harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10

Note: Above gasoline prices do not include inspection tax levied in some states.
*Minimum delivered. †Lighterage 5c per bbl. additional. **Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	Mar. 3	Feb. 24	Feb. 17
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	46.00 –48.00	46.50 –50.00	46.50 –50.00
600 D filtered	38.50 –40.00	39.75 –42.00	39.75 –42.00
600 Warren E filtered	35.00 –37.00	35.00 –37.00	34.50 –36.00
600 s.r. unfiltered	27.50 –30.00	30.00 –31.00	30.00 –31.00
650 s.r. unfiltered	36.00 –37.00	36.00 –37.00	36.00 –37.00
600 flash, s.r.	37.50 –40.00	38.50 –40.00	38.50 –40.00
630 flash, s.r.	42.50 –44.00	42.50 –44.00	42.50 –44.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00 –21.00	20.00 –21.00	20.00 –21.00
250 vis. No. 6 color	17.50 –18.50	17.50 –18.50	17.50 –18.50
200 vis. No. 6 color	16.50 –17.50	16.50 –17.50	16.50 –17.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.00 –24.00	23.00 –24.00	23.00 –24.00
180 vis. No. 3¼ color	19.00	19.00	19.00
100 vis. No. 2¼ color	15.50 –16.00	15.50 –16.00	15.50 –16.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	30.00	30.00	30.00
500 vis. No. 6½ color	26.50 –27.50	26.50 –27.50	26.50 –27.50
400 vis. No. 7¼ color	23.00 –25.00	23.00 –25.00	23.00 –25.00
300 vis. No. 6 color	20.00 –22.00	20.00 –22.00	20.00 –22.00
200 vis. No. 6 color	18.00 –20.00	18.00 –20.00	18.00 –20.00

Wax Markets

(Prices in cents per pound, A.S.T.M. tests; A.M.P.)

NEW YORK (F.a.s. carload lots)

	Mar. 3	Feb. 24	Feb. 17
124-126 Yellow crude scale	2.875– 3.00	2.875– 3.00	2.875– 3.00
122-124 White crude scale	3.00	3.00	3.00
124-126 White crude scale	3.00	3.00	3.00
123-125 Fully refined	4.00 – 4.125	4.00 – 4.125	4.00 – 4.125
125-127 Fully refined	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
128-130 Fully refined	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
130-132 Fully refined	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
133-135 Fully refined	5.50 – 5.75	5.625– 5.75	5.625– 5.75
135-137 Fully refined	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
NEW ORLEANS (F.a.s. carload lots)			
124-126 Yellow crude scale	2.875	2.875	2.875
122-124 White crude scale	2.875– 3.00	3.00	3.00
124-126 White crude scale	2.875– 3.00	3.00	3.00
123-125 Fully refined	3.875– 4.00	3.875– 4.00	3.875– 4.00
125-127 Fully refined	4.00	4.00	4.00
128-130 Fully refined	4.125	4.125	4.125
130-132 Fully refined	4.375	4.375	4.375
133-135 Fully refined	5.50	5.50	5.50

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted and for export shipment only).

GASOLINE	Mar. 3	Feb. 24	Feb. 17
U. S. Motor	8.00	8.50	8.50
60-62, 400 e.p.	9.00	9.50	9.50
61-63, 390 e.p.	9.25	9.75	9.75
64-66, 375 e.p.	9.50	10.00	10.00
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.05	$2.05	$2.05
KEROSENE			
44 water white	7.00	8.00	8.00
41-43 prime white	6.00	7.00	7.00
Water white, cases (cargoes)	$1.85	$1.85	$1.85
Prime white, cases (cargoes)	$1.75	$1.75	$1.75
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875– 4.00	3.875– 4.00	3.875– 4.00
*30 plus translucent gas oil	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
Grade C bunker oil	$0.95	$0.95	$0.95
Grade C bunker oil, cargoes	$0.68 –$0.70	$0.68 –$0.70	$0.68 –$0.70

*Less than ½ of 1% sulphur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
Grade C bunker oil for bunkering purposes, taxes paid	$1.00	$1.00	$1.00
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0. Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	5.75 – 6.00	6.00	6.
200 vis. No. 3 unfiltered pale	8.00 – 8.50	8.50	8.50
300 vis. No. 3 unfiltered pale	8.875– 9.50	9.50	9.50
500 vis. No. 3½ unfiltered pale	10.25 –11.25	11.25	11.25
750 vis. No. 4 unfiltered pale	12.50 –12.75	12.50 –12.75	12.50 –12.75
1200 vis. No. 5 unfiltered pale	16.00 –18.00	16.00	16.00
200 vis. No. 5-6 red oil	7.00 – 7.25	7.25	7.25
300 vis. No. 5-6 red oil	8.375– 8.50	8.50	8.50
500 vis. No. 5-6 red oil	9.25 – 9.50	9.50	9.50
750 vis. No. 5-6 red oil	11.50	11.50	11.50
1200 vis. No. 5-6 red oil	15.00 –15.25	15.00	15.00

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only).

	Mar. 3	Feb. 24	Feb. 17
U. S. Motor gasoline	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
41-43 w.w. kerosene	5.875– 6.25	5.875– 6.25	5.875– 6.25
*26-32 translucent gas oil	3.875– 4.125	3.875– 4.125	3.875– 4.125

*Less than ½ of 1% sulphur.

†Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Mar. 3	Feb. 24	Feb. 17
Gasoline, U. S. Motor, 53-55 Gravity	6.25 – 7.00	6.00 – 7.00	6.25 – 7.00
Gasoline, U. S. Motor-blends and special cuts	7.25 –10.00	7.25 –10.00	7.25 –10.00
Gas Oil, 30-34, per barrel	$0.80 –$1.05	$0.80 –$1.00	$0.80 –$1.00
Diesel Oil, 27 plus, per barrel	$0.75 –$1.00	$0.75 –$1.00	$0.80 –$1.00
Bunker oil, 14-18, per barrel	$0.65 –$0.85	$0.65 –$0.85	$0.65 –$0.85
Fuel oil, 14-18 per barrel	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125, 150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

†**Note:** Above Pacific Export market prices for gasoline and kerosene in cargo lots apply only on goods for coastwise shipment. Gasoline and kerosene prices for shipment to foreign ports are determined as follows: Difference in freight between U. S. Gulf to European Continent and California to European Continent —this difference plus 0.125c for handling, deducted from prices posted at U.S. Gulf by the Export Petroleum Assoc., Inc., which are above prices.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	Mar. 3 Crude &/or Fuel	Mar. 3 Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	40	55
Gulf to U. K. or Continental ports*	26-28	42/6
North Atlantic to U. K. or Continental ports*	23/6–25	36
Calif. to North Atlantic ports (not E. of N. Y.)	†$1.20	$1.00–$1.10
Gulf to North Atlantic ports (not E. of N. Y.)**	46	40

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.
**Venezuela loading same rate. For Tampico 3c to 4c per bbl. additional.
†Prices nominal.

CHAIN STATION OPERATORS!

A National Chest with Envelope Chute Lifts the responsibility of protecting your cash from your station men's shoulders—yet provides absolute burglar protection to you.

Install a National Chest with Envelope Chute in each of your stations. As your station man accumulates funds not needed for change, he can place them in an envelope —drop it in the chute provided for that purpose, and it will fall into the chest where it will remain safe against all burglar and holdup attacks until your collector arrives to open the combination lock. YOUR STATION MEN NEED NOT KNOW THE COMBINATION TO THE CHEST.

With only a small amount of change in your attendant's possession, the risk of assault is not worth while to even the most desperate thug.

This Sturdily Constructed Chest is Sold on an Absolute Money Back Guarantee —

The Standard Oil Co. of Indiana is using nearly a thousand chests similar to the one described above. All national Chests are so designed that they will not only withstand any form of attack—but repair cost after attack is negligible.

We accept orders with the understanding that if for any reason this chest does not please you in every way, you can return it to us for full credit, and all expense will be borne by us.

We supply you with a complete drawing and full specifications for easy installation of chest in concrete block.

ESTABLISHED 1883—44 YEARS AGO

THE NATIONAL SAFE AND LOCK COMPANY

GENERAL OFFICES—2345 EAST 69th STREET
WORKS—EAST 69th to 70th ST. AND PENNSYLVANIA R. R.
CLEVELAND, U. S. A.

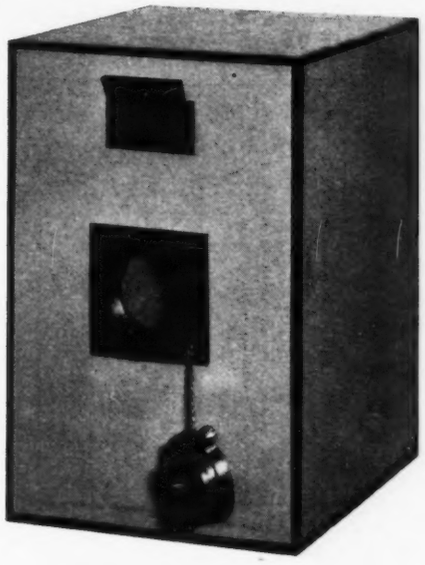


Photo above shows National Envelope Chute Chest Installed in Concrete Block. Upper opening is Envelope Chute. Lower is door to chest.

Protection from
$37.50 UP

NOTE THESE FEATURES—

1. Dial can be removed and kept out of sight.
2. Ideal for periodic collection.
3. Chute has plate so attached it will drop completely over money if attempt is made to remove money with wire.
4. Yale removable dial lock. Discourages sledging.
5. Immediate access after attack without services of expert.
6. Eliminates need of expensive insurance.

Use This Coupon

THE NATIONAL SAFE & LOCK CO.
2345 East 69th St., Cleveland Ohio

☐ Please send me further information on the protection offered by National Chests.

Name .....

Address .....

City ..... State .....

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect Mar. 3, 1930, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Newark, N. J.	13.5	2	15.5	17.5	12.5
Annapolis	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Cumberland, Md.	15	4	19	21	14
Washington, D. C.	13.7	2	15.7	17.7	12.7
Danville, Va.	14.8	5	19.8	21.8	13.8
Norfolk, Va.	13.3	5	18.3	20.3	11
Richmond, Va.	13.7	5	18.7	20.7	12.7
Roanoke, Va.	15	5	20	22	14
Petersburg, Va.	14.3	5	19.3	21.3	13.3
Charleston, W. Va.	14.5	4	18.5	20.5	12.5
Keyser, W. Va.	15.1	4	19.1	21.1	14.1
Parkersburg, W. Va.	13.2	4	17.2	19.2	11.2
Wheeling, W. Va.	14.4	4	18.4	20.4	12.4
Charlotte, N. C.	15.3	5	20.3	22.3	14.3
Hickory, N. C.	15.8	5	20.8	22.8	14.8
Mt. Airy, N. C.	15.5	5	20.5	22.5	14.5
Salisbury, N. C.	15.7	5	20.7	22.7	14.7
Charleston, S. C.	13.3	6	19.3	21.3	12.3
Columbia, S. C.	15.2	6	21.2	23.3	14.2

Note: 2c per gallon discount off t.w. price of gasoline to dealers and commercial consumers thru S. O. New Jersey territory.

CONTINENTAL OIL

Denver, Colo.	14	4	18	21	15.5
Pueblo, Colo.	14	4	18	21	15.5
Grand Junc., Colo.	18	4	22	25	19
Casper, Wyo.	14	4	18	21	14
Cheyenne, Wyo.	15.5	4	19.5	22.5	15.5
Butte, Mont.	18.5	5	23.5	26.5	20
Helena, Mont.	18.5	5	23.5	26.5	20
Salt Lake City, Utah	16.5	3½	20	23	17
Boise, Ida.	18.5	4	22.5	25.5	19
Twin Falls, Ida.	18.5	4	22.5	25.5	19
Albuquerque, N. M.	15	5	20	22	17

S. O. CALIFORNIA

				*Plant	
Phoenix, Ariz.	14	4	18	22	20
Los Angeles, Cal.	16.5	3	19.5	22.5	15.5
Fresno, Cal.	17	3	20	23	17
San Francisco, Cal.	17	3	20	23	15.5
Reno, Nev.	21	4	25	28	19
Portland, Ore.	16.5	4	20.5	23.5	16.5
Seattle, Wash.	16.5	3	19.5	22.5	16.5
Spokane, Wash.	20.5	3	23.5	26.5	20.5
Tacoma, Wash.	17.5	3	20.5	23.5	16.5

Note: 4c per gal. discount to dealers off t.w. price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 1c discount at Phoenix to dealers only.

*This represents retail sale price of gasoline for delivery into fuel tanks of customers' automotive equipment at S. O. California refineries, terminals and district depots as this company operates no retail service stations.

S. O. LOUISIANA

Little Rock, Ark.	12	5	17	18	13
Alexandria, La.	‡12	4	‡16	18	†14
Baton Rouge, La.	11	4	15	15	†14
Lake Charles, La.	††12	4	††16	††18	†14
New Orleans, La.	*11	4	*15	15	†12
Shreveport, La.	11	4	15	17	†14
Lafayette, La.	**13	4	**17	**19	†14
Bristol, Tenn.	14	5	19	20	14
Chattanooga, Tenn.	14	5	19	21	13
Knoxville, Tenn.	14	5	19	21	16
Nashville, Tenn.	13	5	18	20	16
Memphis, Tenn.	12	5	17	19	12.5

Note: 2c per gallon discount off t.w. price of gasoline to dealers thru S. O. Louisiana territory.

*New Orleans gasoline prices include 1c parish tax in addition to 4c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

**Lafayette gasoline prices include 1c parish tax in addition to 4c state tax.

††Lake Charles gasoline prices include 1c parish tax.

‡Alexandria gasoline prices include 1c parish tax

S. O. KENTUCKY

Ashland, Ky.	15	5	20	21	15
Catlettsburg, Ky.	15	5	20	21	15
Lexington, Ky.	13	5	18	20	14.5
Louisville, Ky.	14	5	19	21	13
Covington, Ky.	14	5	19	20	14.5
Clarksdale, Miss.	13	5	18	20	12.5
Gulfport, Miss.††	15.5	5	20.5	22.5	13
Jackson, Miss.	14	5	19	21	13
Natchez, Miss.	13.5	5	18.5	20.5	13
Vicksburg, Miss.	13.5	5	18.5	20.5	13
Birmingham, Ala.	15	4	19	21	14.5
Mobile, Ala‡	15	4	19	21	13.5
Montgomery, Ala.*	16	4	20	22	15
Atlanta, Ga.	14	6	20	22	†15.5

Latest Changes in Tank Wagon Prices

Gasoline

S. O. New York—T.w. and s.s. cut 1c, boroughs of Manhattan, Bronx, Queens and Kings, to 14.3c and 16.3c; and borough of Richmond, to 14.7c and 16.7c, **Feb. 26.**

Atlantic Refining—T.w. and s.s. cut 1c, Hartford, to 15.5c and 17.5c and New Haven, to 15.6c and 17.6c, **Feb. 26.**

S.s. only up 2c, Jacksonville, to 22c, **Feb. 21.**

S. O. Ohio—T.w. cut 3c, s.s. 4c Grand Prairie and Marion Townships, including city of Marion in Marion county, both to 15c, **Feb. 27.**

S. O. Louisiana—S.s. only cut 1c, Baton Rouge, to 15c, **Feb. 22.**

S.s. only cut 2c, Little Rock, to 18c, **Feb. 22.**

T.w. and s.s. cut 2c Lake Charles, to 16c and 18c, **Feb. 26.**

T.w. and s.s. cut 1c thru Tennessee, Arkansas and Louisiana except New Orleans, Lake Charles and Bristol unchanged and s.s. at Baton Rouge and Little Rock unchanged, **Feb. 27.**

S. O. California—T.w. and s.s. cut 1c, Portland, to 20.3c and 23.5c Seattle, to 19.5c and 22.5c; and Spokane, to 23.5c and 26.5c, Feb. 25.

Kerosene

S. O. New York—Kerosene cut 1c, boroughs of Manhattan, Bronx, Queens and Kings and borough of Richmond, to 11.3c and 11.7c, **Feb. 26**; Albany, Syracuse and Burlington, to 12.6c, 12.8c and 13.3c respectively, **Feb. 22.**

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Augusta, Ga.	15	6	21	23	†15.5
Macon, Ga.	15	6	21	23	†15.5
Savannah, Ga.	14	6	20	22	†14
Jacksonville, Fla.	14	6	20	22	14
Miami, Fla.	15	6	21	23	14
Tampa, Fla.	14	6	20	22	13
Pensacola, Fla.**	12	6	18	20	13.5

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. NEBRASKA

Omaha, Neb.	14.25	4	18.25	20.25	13.25
McCook	15.75	4	19.75	21.75	14.75
Norfolk	14.75	4	18.75	20.75	13.75
North Platte	15.75	4	19.75	21.75	14.50
Scottsbluff	15.75	4	19.75	21.75	14.25

S. O. INDIANA

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Chicago, Ill.	14	3	17	18	13
Decatur, Ill.	14.2	3	17.2	18.2	13.1
E. St. Louis, Ill.	13.4	3	16.4	17.4	12.2
Joliet, Ill.	14.4	3	17.4	18.4	13.3
Peoria, Ill.	14.2	3	17.2	18.2	13.1
Quincy, Ill.	14.2	3	17.2	18.2	12.9
Indianapolis, Ind.	14.2	4	18.2	19.2	14.2
Evansville, Ind.	14	4	18	19	14
South Bend, Ind.	14.4	4	18.4	19.4	14.4
Detroit, Mich.	14.8	3	17.8	18.8	14.7
Grand Rapids, Mich.	14.7	3	17.7	18.7	14.6
Saginaw, Mich.	14.9	3	17.9	18.9	14.8
Green Bay, Wisc.	14.6	2	16.6	17.6	13.4
Madison, Wisc.	14.3	2	16.3	17.3	13.1
Milwaukee, Wisc.	14.1	2	16.1	17.1	12.9
La Cross, Wisc.	15.2	2	17.2	18.2	14
Minneapolis, Minn.	15.2	3	18.2	19.2	13.9
Duluth, Minn.	15.5	3	18.5	19.5	13.9
Mankato, Minn.	15.1	3	18.1	19.1	13.7
Des Moines, Ia.	14.5	3	17.5	18.5	13.3
Davenport, Ia.	14.5	3	17.5	18.5	13.3
Sioux City, Ia.	14.1	3	17.1	18.1	12.9
Mason City, Ia.	14.5	3	17.5	18.5	13.3
St. Louis, Mo.	*13.9	2	15.9	16.9	12.3
Kansas City, Mo.	†14.9	2	16.9	17.9	11.6
St. Joseph, Mo.	†14.5	2	16.5	17.5	12.2
Fargo, N. D.	16.9	3	19.9	20.9	15.9
Grand Forks, N. D.	17.2	3	20.2	21.2	16.2
Minot, N. D.	16.9	3	19.9	20.9	15.9
Pierre, S. D.	15	4	19	20	14.4
Huron, S. D.	15.3	4	19.3	20.3	14.7
Wichita, Kans.	12.8	3	15.8	14.8	11.8
Bartlesville, Okla.	12.5	4	16.5	17.5	11.5

S. O. Indiana's quantity contract price schedule thru territory except in Chicago and Detroit on tank truck deliveries of gasoline, figured from the service station price is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month and 3c for 6000 gals. or more a month.

In Chicago and vicinity, these discounts apply. Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price.

In Detroit, effective Feb. 8, 1930, dealers and consumers signing contract for all gasoline for year, get 4c per gal. off s.s. price. Non-contracted accounts get 3c off s.s. price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio state-wide	14	4	18	19	12
Darke and Hancock Counties	13	4	17	17	12
Athens County	11	4	15	15	12

Note: Discount to dealers and commercial accounts generally thru Ohio is 2c per gal. off t.w. price with some exceptions. In counties where prices are below normal, discount is 3c per gal. off t.w. price.

MAGNOLIA PETROLEUM

Muskogee, Okla.	10	4	14	16	10
Oklahoma City	11	4	15	18	10
Tulsa, Okla.	11	4	15	19	10
Fort Smith, Ark.†	11	†4	15	17	12
Little Rock, Ark.	13	5	18	20	13
Texarkana, Ark.*	13	*4	17	19	12
Dallas, Tex.	12	4	16	20	12
Fort Worth, Tex.	12	4	16	19	12
Houston, Tex.	11	4	15	19	11
San Antonio, Tex.	11	4	15	19	11
El Paso, Tex.	12	4	16	20	14

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings	12.3	2	14.3	16.3	11.3
Borough of Richmond	12.7	2	14.7	16.7	11.7
Albany, N. Y.	13.6	2	15.6	17.6	12.6
Buffalo, N. Y.	12.8	2	14.8	16.8	11.8
Rochester, N. Y.	13	2	15	17	12
Syracuse, N. Y.	13.8	2	15.8	17.8	12.8
Boston, Mass.	13.5	2	15.5	17.5	12.5
Augusta, Me.	14.8	4	18.8	20.8	13.8

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Florida, 1/8c on both; Georgia, 1/10c on both; Illinois, 3/100c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and kerosene; 1/2c to 4/5c on Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa, 7/100c; Michigan 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect Mar. 3, 1930

S. O. NEW YORK

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Manchester, N. H.	14.4	4	18.4	20.4	13.4
Burlington, Vt.	14.3	4	18.3	20.3	13.3

Note: S. O. New York allows 3c off t.w. price to dealers in New York City, and 2c off t.w. price thru rest of territory.

ATLANTIC REFINING

Pittsburgh, Pa.	15	*	15	21	13
Philadelphia, Pa.	15	*	15	21	13
Allentown, Pa.	15	*	15	21	13
Erie, Pa.	15	*	15	19	13
Scranton, Pa.	15	*	15	21	13
Altoona, Pa.	15	*	15	21	13
Dover, Del.	15	3	18	20	13
Wilmington, Del.	15	3	18	20	13
Boston, Mass.	13.5	2	15.5	17.5	12.5
Springfield, Mass.	14.5	2	16.5	18.5	13.5
Worcester, Mass.	14.3	2	16.3	18.3	13.3
Fall River, Mass.	14.1	2	16.1	18.1	13.1
Providence, R. I.	13.7	2	15.7	17.7	12.7
Hartford, Conn.	13.5	2	15.5	17.5	13.5
New Haven, Conn.	13.6	2	15.6	17.6	13.6
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Camden, N. J.	13.6	2	15.6	17.6	12.6
Trenton, N. J.	14	2	16	18	13
Annapolis, Md.	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Hagerstown, Md.	14.7	4	18.7	20.7	13.7
Richmond, Va.	13.7	5	18.7	20.7	12.7
Wilmington, N. C.	13.4	5	18.4	20.4	12.4
Brunswick, Ga.	14	6	20	22	**15
Jacksonville, Fla.	14	6	20	22	14

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics.

*4-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.7	17
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	**20.7	**22.2	**24
St. Louis	15.6	17.1	18.9
New York		16	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)	
New York harbor	11.00
Philadelphia district	11.00
Providence	11.50
Tank Wagon or Steel Barrels	
New York City	18
Syracuse	18
Rochester	18
Buffalo	18
Providence	19
Boston	19
Bridgeport	18
Newark	18
Philadelphia	16
Baltimore	18

Note: 2c off above t.w. prices to large buyers in some instances.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
ONTARIO					
Toronto	19.5	5	24.5	28	20.5
Ottawa	19.5	5	24.5	28	20.5
Cochrane	24.5	5	29.5	..	25.5
Ft. William	22.5	5	27.5	31	22.5
Border Cities, including Windsor	18.5	5	23.5	27	19.5
MANITOBA					
Winnipeg	21.5	3	24.5	28	21.5
SASKATCHEWAN					
Regina	26	3	29	33	26
ALBERTA					
Edmonton	27.5	5	32.5	36	27.5
Calgary	23.5	5	28.5	32	23.5
BRITISH COLUMBIA					
Vancouver	23	3	26	30	24
QUEBEC					
Montreal	20.5	5	25.5	29	21.5
Quebec City	21.5	5	26.5	30	22.5
Three Rivers	21.5	5	26.5	30	22.5
NEW BRUNSWICK					
St. John	22	5	27	31	24
Moncton	22	5	27	31	24
NOVA SCOTIA					
Halifax	22	5	27	31	24
Sydney	22	5	27	31	24
PRINCE EDWARD ISLAND					
Charlottetown	22	5	27	31	24

Note: In districts surrounding these points 1c additional is added to city price.

Skilled Supervision
Guarantees the Quality of Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER — ENGINE — CORDAGE

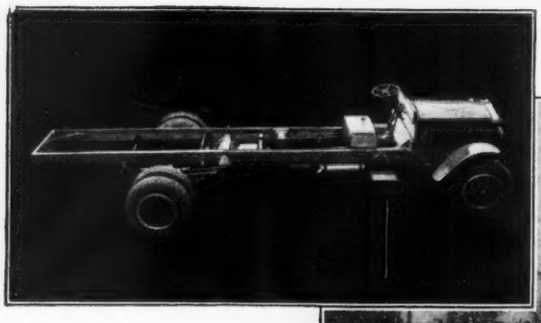
Gulf Refining Company

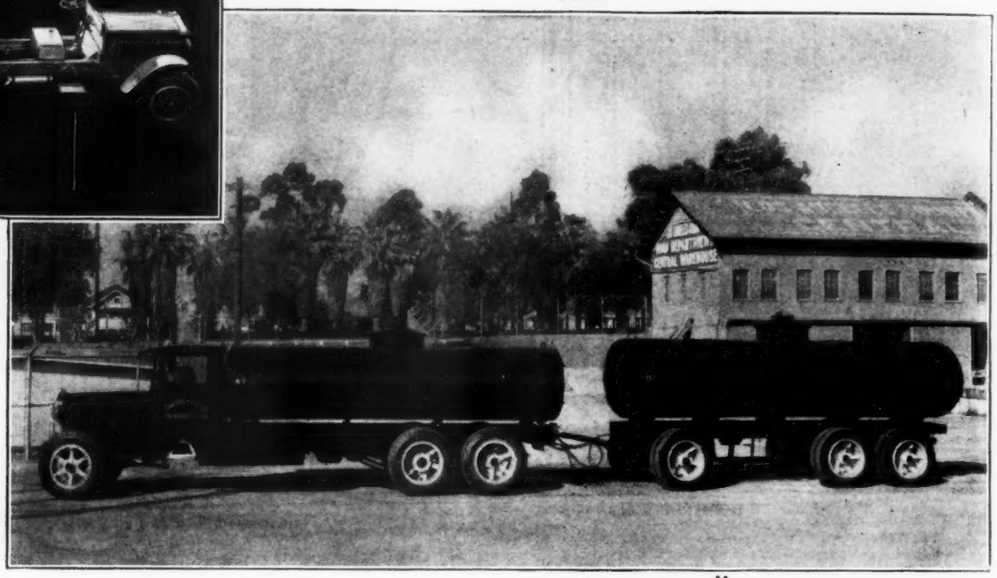
General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

LESS CPM

COST PER MILE





MORE MILEAGE MEANS MORE MONEY

To make money for you a truck must make more miles . . . *ton-miles* . . . economically. And economy in a truck must be figured in terms of these costs—the price of the truck . . . the amount of oil and gas it uses . . . repairs . . . and the number of years of service it gives. In Sterling DC 27 . . . a husky, chain drive six, built to meet the severest hauling conditions . . . *economy is built-in* with:

—12 Forward Speeds, if desired . . . creates increased speed, with greater flexibility for every road or traffic condition . . . less vibration, longer life.

—Longer lived *Red Head* Ricardo Head engine . . . more power, smoother power, *with less fuel* at all speeds.

—Seven-Bearing Crankshaft . . . eliminates vibration, lengthens motor life.

—Full Floating Rear Axle held by sturdy, reinforced radius rods.

—Shock-absorbing *Wood-Lined* Frame and Vanadium Springs cut down maintenance.

For bulletin describing Sterling DC 27 write to* Driver Dan *in care of

STERLING MOTOR TRUCK CO., Milwaukee, Wis.

34 Factory Owned Branches

Portland	Camden	Reading	Bakersfield	San Francisco
Boston	Newark	Akron	Fresno	San Jose
Springfield	Trenton	Youngstown	Los Angeles	Stockton
Worcester	Baltimore	Detroit	Oakland	Klamath Falls
Providence	Erie	Chicago	Sacramento	Portland
Bronx	Philadelphia	St. Louis	San Bernardino	Seattle
Long Island City	Pittsburgh		San Diego	Spokane

Sterling TRUCKS

114

DRIVER DAN SAYS:

Teach your driver good road manners---it creates good will toward your company and helps eliminate public hostility towards trucks or legislation against their operation on the highways.

Crude Oil Prices (in Effect March 3, 1930)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)
(All Penna. Grade Crude Effective Feb. 17, 1930)

†Bradford—Alleghany district.....$3.00
Bradford District Oil in New York Transit Lines (Bradford District).....††$2.75
Bradford District Oil in National Transit Lines (Bradford District).....††2.75
Penna. Grade Oil in National Transit Lines (Other Pennsylvania).....*2.80
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)..... 2.75
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 2.65
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)..... 2.45
Wayne district crude in Cumberland lines (West Virginia)..... 1.24
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective Feb. 17, 1930)..... 1.65
Corning, O., heavy grade (Effective Feb. 17, 1930) 1.55
Somerset Oil in Cumberland Pipe Lines (Kentucky) (Effective Feb. 17, 1930).... 1.37
Somerset Oil in Eureka Pipe Lines (Effective Feb. 17, 1930)..... 1.21
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 29, 1929)....$0.60

*Oil run prior to July 1, 1929 is $2.75 per bbl.
†Posted by Tide Water Pipe Co., Ltd.
††Oil run prior to July 1, 1929 is $2.70 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective Feb. 19, 1930).....$1.45

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon):

32-32.9	$1.08	39-39.9	$1.29
33-33.9	1.11	40-40.9	1.32
34-34.9	1.14	41-41.9	1.35
35-35.9	1.17	42-42.9	1.38
36-36.9	1.20	43-43.9	1.41
37-37.9	1.23	44 and above	1.44
38-38.9	1.26		

(Posted by Pure Oil Co.)

Midland, Midland County.....$1.25

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.
Effective Feb. 15, 1930

Wooster	$1.75	Princeton	$1.60
Lima	1.65	Illinois	1.60
Waterloo	1.20	Plymouth	1.18
Indiana	1.42	West Kentucky	1.50

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia.....$2.05
Oil Springs..... 2.12

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)
Effective Feb. 15, 1930

Below 25	$0.60	35-35.9	$1.17
25-25.9	0.66	36-36.9	1.20
26-26.9	0.72	37-37.9	1.23
27-27.9	0.78	38-38.9	1.26
28-28.9	0.84	39-39.9	1.29
29-29.9	0.90	40-40.9	1.32
30-30.9	0.96	41-41.9	1.35
31-31.9	1.02	42-42.9	1.38
32-32.9	1.08	43-43.9	1.41
33-33.9	1.11	44 and above	1.44
34-34.9	1.14		

Above prices were posted by Humble and The Texas Co. on Jan. 15; on Jan. 16 by Magnolia in Texas, and Jan. 17 in Oklahoma and Kansas; and on Feb. 13 by Sinclair; by Carter Oil on Jan. 16.

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Humble's prices in above fields same as Prairie's, but effective Jan. 15, 1930.

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Magnolia posts in above fields and in Panola Co., same schedule as Prairie, which see. Its postings in Texas were effective Jan. 16, and in Oklahoma and Kansas, Jan. 17, 1930.

Jan. 16, 1930, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in Winkler, Crane, etc., which see.

Iatan district.....$0.93
Corsicana heavy..... 0.75
Luling..... 0.75
Mirando..... 0.75
Darst Creek, 60° F. gravity..... 1.05

Carter Oil Co.

(Oklahoma and Kansas)

Jan. 16, 1930, same schedule as Prairie, which see.

PANHANDLE, TEXAS

Humble Oil & Refining Co.
Effective Jan. 15, 1930

Hutchinson and Carson Counties:

Below 32	$0.72	38-38.9	$0.96
32-32.9	0.78	39-39.9	0.99
33-33.9	0 81	40-40.9	1.02
34-34.9	0 84	41-41.9	1 05
35-35.9	0 87	42-42.9	1.08
36-36.9	0.90	43-43.9	1.11
37-37.9	0.93	44 and above	1.14

Wheeler County:

Below 30	$0.70	37-37.9	$1.03
30-30.9	0.76	38-38.9	1.06
31-31.9	0 82	39-39.9	1.09
32-32.9	0 88	40-40.9	1.12
33-33.9	0.91	41-41.9	1.15
34-34.9	0.94	42-42.9	1.18
35-35.9	0.97	43-43.9	1.21
36-36.9	1.00	44 and above	1.24

Gray County:

Below 29	$0.69	37-37.9	$1.08
29-29.9	0.75	38-38.9	1.11
30-30.9	0.81	39-39.9	1.14
31-31.9	0.87	40-40.9	1.17
32-32.9	0.93	41-41.9	1.20
33-33.9	0.96	42-42.9	1.23
34-34.9	0.99	43-43.9	1.26
35-35.9	1.02	44 and above	1.29
36-36.9	1.05		

Above prices met by The Texas Co. on Jan. 15, and Magnolia on Jan. 16.

WEST TEXAS

Humble Oil & Refining Co.
Effective Jan. 15, 1930

Winkler, Crane, Upton, Crockett, and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.55	31-31.9	$0.76
25-25.9	0.58	32-32.9	0.79
26-26.9	0.61	33-33.9	0.82
27-27.9	0.64	34-34.9	0.85
28-28.9	0.67	35-35.9	0.88
29-29.9	0.70	36 and above	0.91
30-30.9	0.73		

Howard and Glasscock counties:
Effective Jan. 15, 1930

Below 25	$0.55	31-31.9	$0.72
25-25.9	0.58	32-32.9	0.74
26-26.9	0.61	33-33.9	0.76
27-27.9	0.64	34-34.9	0.78
28-28.9	0.66	35-35.9	0.80
29-29.9	0.68	36 and above	0.82
30-30.9	0.70		

Jan. 15, 1930, The Texas Co. posted same prices in Crane, Upton, Winkler and Lea, and Magnolia, on Jan. 16, in Crane, Upton, Winkler, Glasscock, Howard and Mitchell as Humble in Winkler, Crane etc.

SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)
Effective Jan. 15, 1930

Mirando.....$0.75
Salt Flat..... 1.05
Darst Creek..... 1.05

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, Sabine and **Cotton Valley.
Effective Jan. 16, 1930

Below 28	$0.78	36-36.9	$1.20
28-28.9	0.84	37-37.9	1.23
29-29.9	0.90	38-38.9	1.26
30-30.9	0.96	39-39.9	1.29
31-31.9	1.02	40-40.9	1.32
32-32.9	1.08	41-41.9	1.35
33-33.9	1.11	42-42.9	1.38
34-34.9	1.14	43-43.9	1.41
35-35.9	1.17	44 and above	1.44

**Cotton Valley, below 36, $0.80. Beginning with 36-36.9, same schedule as above.

Smackover, below 24.....$0.85
do 24 and above..... 1.00
Bellevue (Jan. 16, 1930)..... 1.05
*Urania, La. (Jan. 16, 1930)..... 0.85
†East El Dorado..... 0.75

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

Jan. 15, 1930, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.66; 26-26.9, $0.72; 27-27.9, $0.78.

Jan. 16, Magnolia, Louisiana Oil, and Gulf Companies met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.
Effective Jan. 16, 1930

Below 28	$0.70	30-30.9	$0.85
28-28.9	0.75	31-31.9	0.90
29-29.9	0.80	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.
Effective Jan. 15, 1930

Grades A	$1.05	29-29.9	$1.05
Grades B:		30-30.9	1.08
Below 25	0.90	31-31.9	1.11
25-25.9	0.93	32-32.9	1.14
26-26.9	0.96	33-33.9	1.17
27-27.9	0.99	34-34.9	1.20
28-28.9	1.02	35 and above	1.23

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only

Story of Oil, From Sand To Filling Station

EL DORADO, Kans., Feb. 27.—What will be in effect a "flow sheet" of oil from the sand in the earth to the finished gasoline in the filling station is to be presented in booklet form by the El Dorado Refining Co., El Dorado, Kans. The information and illustrations used in the book are taken from a series of 14 advertisements that have appeared during the past few months in NATIONAL PETROLEUM NEWS.

These advertisements have shown, in pictorial and cartoon form the processes of producing the oil, transporting it to the refinery, and the various phases it passes through at the refinery until it emerges as a finished product.

The language and illustrations used are simple and non-technical, and present to the layman a comprehensive picture of the mechanics of the refining end of the oil business. No particular process is mentioned, or illustrated, the text being devoted to a presentation of basic principles and processes.

With the exception of the postage, which is 10 cents per copy, the books will be distributed free of charge to those writing for them to The El Dorado Refining Co. at El Dorado, Kansas. The books are to be off the press March 1.

Club To Show Oil Film

SUPERIOR, Wis.—"The Story of Petroleum," Bureau of Mines film, will be exhibited in Superior April 25 by the Noco club, an organization of employees of the Northwestern Oil Co. Plans have been made to show the picture in the evening, but there may be a matinee showing for school children.

MARS "J" UNIT FARM PUMP

Saving of $7.00 to $11.00 on installation cost

No pipe to cut. No fittings to buy. No foundation to build for Pump.

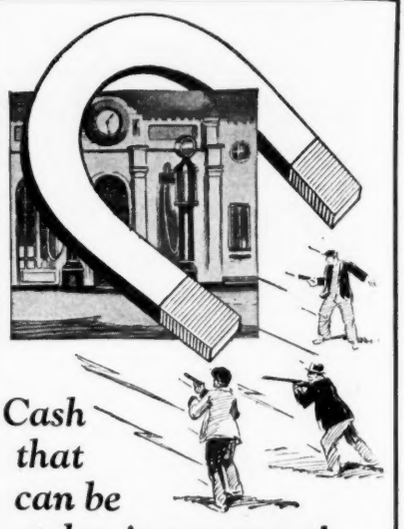
Home Service Station at small cost. Placed in some convenient spot on yard. Drive up and fill same as at Public Service Station. The most popular, complete and satisfactory Unit built.

Do not be too sure of your old customers staying with you if they are storing and serving gasoline and kerosene in cans, barrels, faucet tanks, or its like about the farm yard, unguarded and unprotected. A progressive Oil Jobber or Tank Truck Salesman will assist the customer in getting modern Equipment at minimum cost and thereby obtain his business.

Every Bulk Distributing Station and Tank Truck Salesman should write us for our 1930 literature and price.

THE MARS CO., *Mfr.*, L-B 133, Aurora, Ill.

Established 1914



Cash that can be stolen is a magnet!

It draws the burglar and hold-up man just as irresistibly as the loadstone draws steel filings.

The York Burglary Chest—the result of nearly half a century in expert safe construction—will bring to your service station the protection needed.

YORK SAFES

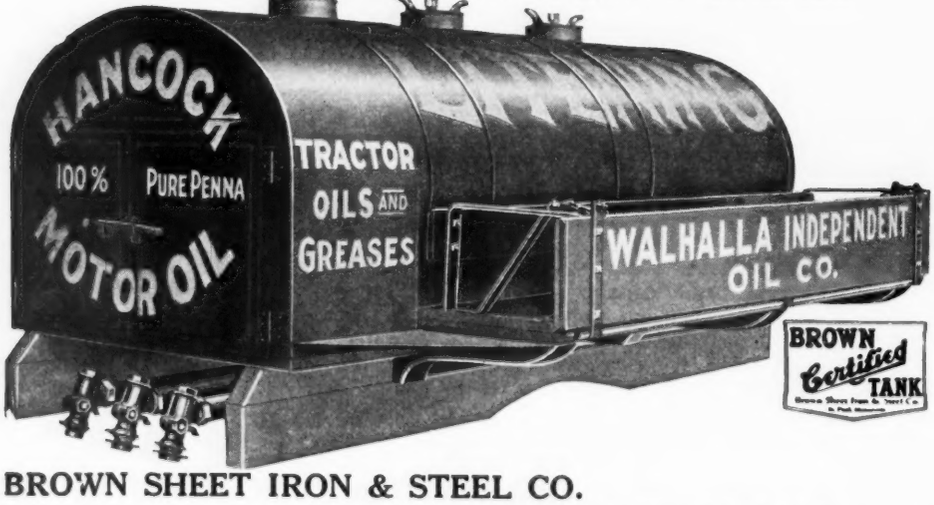
YORK SAFE *and* LOCK COMPANY
York, Pa.

BROWN GUARANTEED OIL-TIGHT TRUCK TANKS

From coast to coast BROWN CERTIFIED TANKS are the standard of comparison. There are no secrets nor patents on these tanks, just good, honest, full weight material, correctly built by real tradesmen.
When you buy a truck tank you dont want to purchase substitutes, nick-nacks, nor freak experiments, You WANT, and have a RIGHT TO EXPECT, EFFICIENT SERVICE, OIL TIGHT DELIVERY, and ATTRACTIVE APPEARANCE.
These are the reasons why hundreds of successful Oil Companies havestandardized on

BROWN CERTIFIED TRUCK TANKS

It will pay you to investigate their merits



Partial list of our Products:

- **Bulk Storage Tanks. Double Electric Welded.**
- **Truck and Tractor Tanks.**
- **Lube Oil Tanks, Steam Heated and Insulated.**
- **Compounding Kettles SteamJacketedwith Agitators.**
- **Northwestern Steel Barrel Headquarters.**

BROWN SHEET IRON & STEEL CO. **ST. PAUL, MINN.**

Tear out this coupon and mail it today

We are interested in your tanks. Send your catalog and prices.

Make of Truck..... Year..... We operate..... (number) Tank Trucks

Other equipment on which you may send prices.....

Name..... Address.....

Crude Oil Prices (in Effect March 3, 1930)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective Jan. 15, 1930

Grades A	$1.05	*Grades B	$0.90
‡Grades B (light crude)			
35–35.9	$1.23	40–40.9	$1.36
36–36.9	1.26	41–41.9	1.38
37–37.9	1.29	42–42.9	1.40
38–38.9	1.32	43–43.9	1.42
39–39.9	1.34	44 and above	1.44

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Feb. 15, 1930)

‡Salt Creek 29–29.9	$0.90
" " 30–30.9	0.96
" " 31–31.9	1.02
" " 32–32.9	1.08
" " 33–33.9	1.11
" " 34–34.9	1.14
" " 35–35.9	1.17
" " 36–36.9	1.20
" " 37 and above	1.23
Elk Basin	1.45
Grass Creek light	1.45
Big Muddy	$1.33
Lance Creek	1.53
Rock Creek	1.25
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.65
‡Cat Creek, Mont.	1.45
Sunburst, Mont.	1.65
‡Hogback, N. Mex.	1.70
Artesia, N. Mex.	1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Alamitos Heights Huntington Beach Signal Hill Seal Beach	Inglewood Torrance	Olinda-Brea Canon †Richfield	Athens-Rosecrans Dominguez	Elwood Terrace	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Kettleman Hills	*Santa Maria (Orcutt)	*Ventura
14–14.9	$ .70	$ .70	$ .70	....	....	$ .70	$ .70	....	$ .50	$ .50	$ .50	$ .50	$ .50	$ .70	....	$ .65	$ .70
15–15.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
16–16.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
17–17.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
18–18.9	.75	.75	.75	....	....	.75	.75	....	.50	.56	.56	.56	.56	.70	....	.70	.75
19–19.9	.80	.80	.80	....	....	.80	.80	....	.50	.62	.62	.62	.62	.75	$1.65	.70	.80
20–20.9	.85	.85	.85	....	....	.84	.84	....	....	.68	.68	.68	.68	.80	for	.70	.85
21–21.9	.89	.89	.89	....	....	.88	.88	.89	....	.74	.74	.74	.74	.85	55°	.86	.86
22–22.9	.93	.93	.93	....	....	.91	.91	.92	....	.80	.80	.80	.80	.90	gravity	.87	.87
23–23.9	.97	.97	.97	....	....	....	.94	.95	....	.85	.85	.85	.85	.95	and	.90	.90
24–24.9	1.01	1.01	1.01	1.01	....	....	.97	.98	....	.90	.90	.88	.88	.98	over	.94	.94
25–25.9	1.05	1.05	1.05	1.05	....	....	1.00	1.01	....	.95	.95	.91	.91	1.01	....	.98	.98
26–26.9	1.09	1.09	1.09	1.09	....	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	....	1.02	1.02
27–27.9	1.13	1.13	1.13	1.13	....	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	....	1.06
28–28.9	1.17	1.17	1.17	1.17	....	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	....	1.10
29–29.9	1.21	....	1.21	1.21	....	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	....	....	1.14
30–30.9	1.25	....	1.25	1.25	....	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	....	1.18
31–31.9	1.30	....	1.30	1.30	....	....	....	1.25	....	1.28	1.28	1.14	....	....	....	....	1.23
32–32.9	1.35	....	....	1.35	....	....	....	1.30	....	1.34	1.34	1.18	....	....	....	....	1.28
33–33.9	....	....	....	1.41	....	....	....	1.35	....	1.40	1.40	1.22	....	....	....	....	1.34
34–34.9	....	....	....	1.47	$1.16	....	....	1.40	....	....	1.46	1.26	....	....	....	....	....
35–35.9	....	....	....	1.53	1.22	....	....	1.45	....	....	1.52	1.30	....	....	....	....	....
36–36.9	....	....	....	1.59	1.28	....	....	1.50	....	....	....	....	....	....	....	....	....
37–37.9	....	....	....	1.65	1.34	....	....	1.55	....	....	....	....	....	....	....	....	....
38–38.9	....	....	....	1.71	1.40	....	....	1.60	....	....	....	....	....	....	....	....	....
39–39.9	....	....	....	1.77	1.46	....	....	1.65	....	....	....	....	....	....	....	....	....
40–40.9	....	....	....	1.83	1.52	....	....	....	....	....	....	....	....	....	....	....	....
41–41.9	....	....	....	1.89	1.58	....	....	....	....	....	....	....	....	....	....	....	....
42–42.9	....	....	....	1.95	1.64	....	....	....	....	....	....	....	....	....	....	....	....

*Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except it does not post prices in Wheeler Ridge, Whittier, La Habra, Newhall and Kettleman Hills. Standard does not contract for crude testing 11-13.9 gravity, but pays 45c a barrel when purchased.

†Richfield posted only to 30-30.9 at $1.25.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Mar. 3	Feb. 24
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$1.00–1.05	$1.00–1.05
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of cwt.	$3.10–4.00	$3.10–4.00
Liquid Chlorine, tank cars, wks. lb.	3.50–5.00	3.50–5.00

Compounders' Supplies

	Mar. 3	Feb. 24
Vegetable Oils		
Linseed carloads, spot lb.	14.00	14.20
Tanks, spot	13.00	13.40
Soya Bean, Tank, coast, lb.	9.00–9.50	9.00–9.50
Oleic Acid		
Distilled, tanks lb.	9.25–9.50	9.25–9.50
Distilled, bbls. lb.	10.125-10.375	10.125-10.375
Saponified, tanks lb.	9.25	9.25
Saponified, bbls. lb.	10.125–10.625	10.125-10.625
Lard Oils		
Prime Winter Strained lb.	13.50	13.50
Extra Winter Strained lb.	12.50	12.50
Extra lb.	12.00	12.00
Extra No. 1 lb.	11.25	11.25
No. 1 lb.	11.00	11.00
No. 2 lb.	10.75	10.75
Tallow oil lb.	10 00	10.50
Neatsfoot Oil		
Pure, bbls. lb.	13.50	13.50
Extra, bbls. lb.	11.50	11.50
No. 1 bbls. lb.	11.00	11.00
Cold Pressed lb.	18.00	18.00
Fish Oils		
Menhaden Oil		
Light Pressed gal.	63–65	63–65
Light Pressed, tank cars, N. Y. gal.	5[illegible]	53
White bleached gal.	67	67
Yellow bleached gal.	61	61
Whale, extra winter bleached, gal.	85	85
Naval Stores		
Steam, distilled turpentine, N. Y. gal.	51	51
Steam distilled turpentine, Savannah gal.	46	46
Gum turpentine, N. Y. gal.	57	57
Gum turpentine, f.o.b. cars Savannah gal.	50.50	50.50
Wood Rosin, N.Y. gal.	$7.50	$7.50
Wood Rosin F, Savn'h bbl	$6.70	$6.70
Gum Rosin B, N. Y. bbl	$8.20	$8.20
Gum Rosin B, f.o.b. cars Savannah bbl.	$7.10	$7.10
Rosin oil, pure gal.	60	60
Rosin oil, compounded gal.	60	60
Pine Tar		
Kiln burnt bbl.	$11.00–13.00	$11.00–13.00
Retort bbl.	$13.50–14.50	$13.50–14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	57–64	57–64

Reciprocal Buying Probed By Government

By A. E. Heiss
N. P. N. STAFF WRITER

WASHINGTON

WHAT oil companies, if any, have been or are now, using their right to designate the railroads that shall haul their freight, to compel those railroads to buy petroleum products from them to the exclusion, in whole or in part, of other oil companies?

What big users of oil, if any, have been using their requirements for petroleum products to compel oil companies to buy supplies or machinery or equipment from them to the exclusion, in whole or in part, of other manufacturers of like articles?

Suspecting much of that sort of clubbing, the government intends finding out about such things. Two probes are under way, one by the Federal Trade Commission, the other by the Interstate Commerce Commission. The former is charged with the duty of keeping unfair methods of competition out of interstate commerce. The latter is charged with the duty of seeing to it that the railroads, under efficient and economical management, earn a fair return upon the value of the property they devote to the service of the public.

The work of the trade body has gone to the extent of formally accusing the Mechanical Manufacturing Co. and two traffic managers of Swift & Co., Chicago meat packers, of using the tonnage of the packing concern and its subsidiaries to force railroads to buy railroad bumpers, draft gear and other railroad equipment from the manufacturing company. The common stock of this concern is alleged to be owned or controlled by the members of the Swift family, the principal stockholders in Swift & Co., and employees of Swift & Co., including R. O. O'Hara, manager and W. A. Mayfield, assistant manager of Swift & Co.'s traffic department.

The two traffic managers, alleged to negotiate with railroad companies for the carrying of Swift & Co.'s traffic in Swift Transportation Co. refrigerator cars, are accused of utilizing their official positions in the Swift organization to "induce and compel officials of railroad companies to give undue preference to the draft gears and other equipment manufactured and/or sold" by the Mechanical Manufacturing Co. "by means of promises of freight traffic from Swift & Co. and its subsidiary corporations and threats of withdrawal of said traffic if the railway companies would not purchase draft gears and other equipment manufactured and/or sold by said respondent, Mechanical Manufacturing Co."

Four or five parties of investigators are examining the books and records of railroad companies to find out whether they have been "maced" by shippers. The investigators represent the Interstate Commerce Commission. That body, some time ago, began a blind proceeding to develop facts about what it called reciprocal buying by railroad companies and their customers. At the time the inquiry was instituted it was stated that reports indicated that big shippers, among which there are big oil refiners, were using pressure to compel the railroad companies to buy from the big units in about every line of industry or find themselves deprived of traffic. No particular attention was given to that proceeding, however, until the trade body filed its complaint against the Swift traffic managers.

Since the promulgation of that complaint, a few days before Christmas, the whole matter has flamed up tremendously. There is a question whether the Interstate Commerce Commission can do more than chide the railroad companies for yielding to pressure from big shippers. That is all it was able to do when it found a number of railroads had made what it believed were improvident contracts for the repair of engines and cars in private shops because they wanted to break the hold of the shop unions.

But the trade body calls such coercion an unfair method of competition, a thing that can be punished, if the courts agree with the trade body that it is unfair for Swift & Co. traffic managers to use Swift tonnage for the benefit of a company in which Swift stockholders, including the Swift family, are alleged to hold a controlling stock interest, if O'Hara and Mayfield have done the things of which they are accused.

It is admitted by both regulating bodies that there is a vast deal of allegation about the clubbing, both ways, by big shippers and railroads. But it is hard to get facts upon which definite steps can be taken. The Interstate Commerce Commission's method differs from that of the trade body. It sends out its secret agents to gather materials. Then it holds a general hearing without formal complaint at which it requires officers of railroads to answer questions about cases concerning which the secret agents have gathered data. In that way officers of railroads are compelled to furnish facts about their customers whether they like to or not.

The trade body gathers facts. Then it files a formal complaint such as the one which probably will become known as the Swift case, although Swift & Co. is not accused.

Neither body is willing to disclose any of the facts it has gathered thus far. However the intimations from the men in the two commissions handling the matter are that developments of an interesting character, will be developed. The trade body men will not admit the possibility of other complaints being filed. They content themselves by placing emphasis on the fact that the so-called Swift complaint is the first of that character. The inference is that there will be others.

At various times oil companies have been revealed as the holders of large contracts for the lubrication of railroad equipment and for oil used as fuel. Whether methods by which such contracts have been secured are being investigated remains to be seen. The two inquiries go to the heart of the question whether tonnage for transportation is being switched around so as to make it harder for the smaller fellows to do business.

Attendant, as Bookkeeper, Saves $15 Weekly

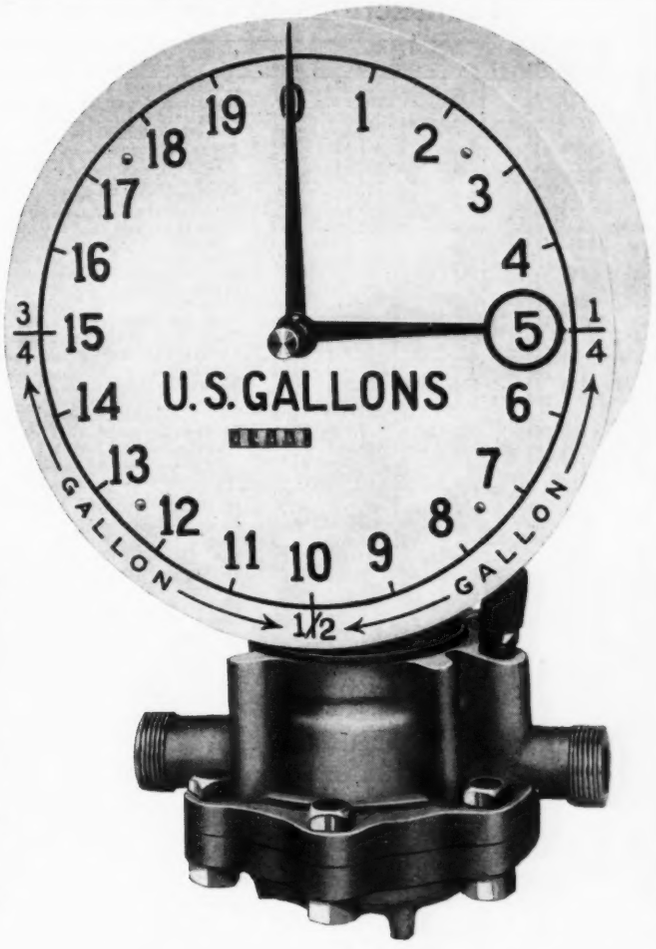
TERRE HAUTE, Ind.—A service station attendant doubles as bookkeeper for the Culley Oil Co., saving the company $15 weekly and enhancing his income by $5 a week.

The company's office is on the ground floor of a downtown station. Recently a girl bookkeeper was to be married and left her job rather suddenly. While seeking a new bookkeeper the attendant did the work temporarily.

The attendant's work was satisfactory and he was made permanent bookkeeper. The girl's salary was split, $5 going to the attendant and $15 to the company. The attendant is on the day shift, working from 6 a. m. to 2:30 p. m., and the extra work fitted into his schedule.

Duties of the service station manager and the city salesman also are combined. Guy Rucker, as station manager, visits the five stations by 9:30 a. m., then goes on the street soliciting business.

Station men do the company's painting, on stations, inside and outside, and on the trucks.



YOU WIN

when you specify Niagara Gasoline Meters

YOU win—for you are assured in advance that when you specify Niagara Gasoline Meters you are buying a meter with a world-wide reputation for accuracy, long-life, and unfailing performance. You win—for Niagara Meters require little or no service during their operation on your gasoline pumps.

Here are some of the reasons why you are not gambling with an uncertainty when you order Niagara Meters on the pumps you buy.

Simplicity. The Niagara Meter is the nutating piston type of meter. The nutating piston is the simplest in design of any meter. Its trouble free service means sustained accuracy.

Accuracy. The nutating piston used in Niagara Gasoline Meters operates by positive displacement—hence the accuracy that makes Niagaras universal favorites.

Reputation. The thirty-five year reputation for building honest-measurement meters, stands squarely behind every Niagara Gasoline Meter. The Buffalo Meter Co. builds only one type of meter—the nutating piston type.

Satisfaction. The Niagara Gasoline Meter satisfies the station owner, the public, the Sealers of Weights and Measures in every state in the Union, meets the requirements of the Board of Fire Underwriters, and will satisfy you with its years of accurate service.

Be sure to specify Niagara Gasoline Meters on the next gasoline pumps you buy. Your pump manufacturer will be glad to cooperate with you, and we will gladly cooperate with him. Write for full information.

THE BUFFALO METER COMPANY

2889 Main Street **Buffalo, N. Y.**

Niagara Meters

Transactions in Oil Shares on New York Stock Exchange

1928 High	1928 Low	1929 High	1929 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Mar. 1 Sales	First	High	Low	Last	Change
43¾	27½	42⅝	17½	(sh) 922,075	N.P.	Amerada Corp	50cQ	Jan. 31, 30	2,900	18	18½	18	18	— ⅛
85	51¼	64¼	12½	(sh) 209,180	N.P.	American Republics Corp	....	.....	6,400	24	25	23	23¾	0
53¾	37½	47¼	32½	$56,000,000	$25	Associated Oil	50cQ	Dec. 31, 29	40	33	33	†32½	33	0
62½	50	77⅞	30	50,000,000	25	Atlantic Refining	‡25cQ	Dec. 16, 29	29,600	39½	40½	38	38¾	+ ¼
53	20	49⅛	20	47,261,125	25	Barnsdall Corp. A	50cQ	Feb. 7, 30	17,400	21⅜	22¼	20¾	21⅛	— ¼
						do B	50cQ	Feb. 7, 30	.....	.....	.....	.....	.....	.....
51¼	20	49	38⅛	300,525	25									
24½	12¼	32⅞	13	(sh) 956,075	N.P.	Beacon Oil	....	.....	1,100	14⅝	14⅝	14	14¼	+ ⅛
36	25¼	34½	25	$51,524,150	$25	California Petroleum	....	Jan. 1, 29	20	28	28	28	28	0
.....	.....	37⅝	18	(sh) 4,634,163	N.P.	Continental Oil (Delaware)	.....	.....	20,600	20½	22	19¾	20⅛	— ⅛
94⅞	68	94¾	42¼	21,031,400	100	General Asphalt	$1Q	Dec. 16, 29	4,800	53	56¼	52¾	54⅜	+ 1⅜
141	110⅜	138	103½	6,628,200	100	do pfd	$1.25Q	Dec. 2, 29	.....	.....	.....	.....	.....	.....
67	79	109	23	25,000,000	100	Houston Oil	.....	.....	33,300	64	68¾	60	67¼	+ 4¼
38⅜	21¾	39¼	17¾	(sh) 1,333,157	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 30	13,000	21	21⅞	20⅝	21½	+ ½
39⅝	9	53	13	$4,299,190	$10	Indian Refining	....	Dec. 15, 20	16,500	20⅛	20	19⅛	19⅞	— ⅜
37¼	8½	51¼	11½	4,550,110	10	do ctfs	.....	.....	2,900	19	19½	18⅞	18¾	— ¼
185	140	165	160	1,977,700	100	do pfd. new	$1.75Q	Jan. 1, 30	.....	.....	.....	.....	.....	.....
39⅛	27⅜	38⅜	16½	3,992,387	N.P.	Lago Oil & Transport	....	May 2, 27	500	22⅛	22½	22⅛	22⅛	0
119¾	9⅜	18	7	(sh) 1,187,298	N.P.	Louisiana Oil Refining	.....	.....	2,700	8¼	8½	8	8	— ½
96	78	100¼	80	$4,000,000	$100	do pfd	$1.62½	Feb. 15, 30	150	88⅞	88⅞	88⅞	88⅞	0
25⅛	12⅛	18½	5⅛	(sh) 330,000	N.P.	Maracaibo Oil	....	.....	1,500	5½	6⅝	5½	6	+ ⅜
360	250	295	176	$45,942,800	$100	Mexican Petroleum	$3Q	Jan. 20, 30	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	12,000,000	100	do pfd	$2Q	Jan. 20, 30	.....	.....	.....	.....	.....	.....
73	43⅝	69¾	9¼	(sh) 995,500	N.P.	Mexican Seaboard	.....	Nov. 15, 24	104,200	20¾	22	18¾	20¼	— ⅛
44½	25⅛	39⅞	22½	(sh) 1,857,461	N.P.	Mid-Continent	50cQ	Feb. 15, 30	6,700	24¼	24¾	23½	24	— ¼
120½	103¼	121	120¼	$6,718,000	$100	do pfd	$1.75Q	Dec. 1, 29	.....	.....	.....	.....	.....	.....
7⅝	2⅜	5⅛	⅝	23,849,720	10	Middle States	....	July 1, 23	.....	.....	.....	.....	.....	.....
5⅞	1½	3⅝	⅞	5,950,500	10	do ctfs	....	.....	2,700	1	1⅛	1	1⅛	+ ⅛
2¼	1	1½	⅝	(sh) 3,500,000	N.P.	Pacific Oil	....	.....	3,600	1⅛	1¼	1⅛	1⅛	0
55½	38¼	69	40¼	$50,000,000	$50	Pan American P. & T	....	Oct. 20, 27	500	51⅝	53	52½	52½	+ ⅞
58⅞	37¾	69¼	40½	121,101,400	50	do B	....	Oct. 20, 27	4,100	52	53⅞	53	53	+ 1⅜
28⅝	15½	17½	13½	(sh) 400,000	N.P.	Pan. American Western B	....	Jan. 30, 27	.....	.....	.....	.....	.....	.....
21¾	11½	15¼	3	(sh) 199,370	N.P.	Panhandle P. & R	....	.....	1,200	4½	4¾	4½	4⅞	+ ⅛
106¼	70	76	47½	$2,935,200	$100	do pfd	.....	July 2, 23	100	50⅛	50⅛	50⅛	50⅛	+ ⅛
53⅞	35¼	47	24¼	(sh) 2,406,803	N.P.	Phillips Petroleum	‡50Q	Jan. 2, 30	26,000	30⅜	33⅞	29⅜	33⅜	+ ⅜
5¼	½	3⅜	1	$29,622,925	$25	Pierce Oil Corp	....	.....	5,300	1¼	1¼	1⅛	1⅛	— ⅛
50	16¼	51½	20	15,000,000	100	do pfd	....	Feb. 1, 22	200	23½	23½	23½	23½	— ⅞
6⅝	3½	5⅞	⅛	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	8,400	3	3⅛	2½	3	0
64⅝	59½	65⅝	40½	$60,636,450	$25	Prairie Oil & Gas	‡50cQ	Dec. 31, 29	16,000	48	48	46	46	— 1½
.....	.....	65	45	101,250,000	25	Prairie Pipe Line	‡76cQ	Dec. 31, 29	14,700	58⅜	58⅞	55⅝	56⅛	— 1¾
29⅞	16	25⅞	4	37,450,850	50	Producers & Refiners	....	Sept. 15, 23	3,200	6⅞	8⅜	6½	7½	+ ½
49⅝	41	46¾	25½	2,845,350	50	do pfd	.....	May 1, 25	.....	.....	.....	.....	.....	.....
31¼	19	30¾	20	75,959,255	25	Pure Oil Co	37½cQ	Dec. 16, 29	14,500	21¾	22½	21⅛	22¼	+ ⅝
119	108	116	108	13,000,000	100	do 8% pfd	$2Q	Jan. 2, 30	90	113⅝	113¾	113	113¼	+ ⅛
56	23½	49⅝	20	47,127,725	25	Richfield Oil	50cQ	Feb. 15, 30	8,500	24	24⅝	23⅝	24¼	+ ⅜
.....	.....	42½	15	(sh) 1,200,000	N.P.	Rio Grande Oil Co	50cQ	Jan. 25, 30	12,200	18⅝	19¼	18⅛	19	+ ⅜
64	44⅝	64	43⅛	(sh) 546,646	$13.40	Royal Dutch N. Y. shares	$1.3415	Feb. 5, 30	8,000	50½	50⅞	49⅜	50	— ½
57½	39¾	55⅝	42⅜	(sh) 65,203,000	£2	Shell Transport & T	97c	Jan. 28, 30	90	42¾	42¾	†42⅜	42⅜	— ⅛
39⅝	23¼	31¾	19	12,254,979	N.P.	Shell Union Oil	35cQ	Dec. 31, 29	17,500	21⅛	21¾	21½	21½	— ⅛
27¼	18⅛	40⅜	15	$8,357,280	$10	Simms Petroleum	40cQ	Feb. 28, 30	1,600	23½	25	23	24¼	— ⅛
46¾	17⅜	45	21	5,494,095	N.P.	Sinclair Consolidated	50cQ	Jan. 15, 30	118,900	23	25⅞	22⅜	24½	+ 1½
110	102½	111	103	$16,025,200	$100	do pfd	$2Q	Feb. 15, 30	.....	.....	.....	.....	.....	.....
42⅜	25	46½	28	27,396,590	25	Skelly Oil Co	50cQ	Dec. 16, 29	4,400	29⅜	30	28⅞	29⅛	+ ⅛
80	53	81⅞	51½	(sh) 13,016,435	N.P.	S. O. California	‡62½cQ	Dec. 16, 29	29,900	59½	61⅛	57⅝	58¾	+ ½
59¾	37¾	83	48	$612,095,850	$25	S. O. New Jersey	‡25cQ	Dec. 16, 29	84,100	58¼	60⅞	58¼	58⅞	— ¼
45½	28¾	48½	31¼	434,094,575	25	S. O. New York	40cQ	Dec. 16, 29	57,800	32	33⅛	31¾	32⅛	+ 1
77	31½	84¾	53	(sh) 1,297,847	N.P.	Sun Oil	‡25cQ	Dec. 16, 29	1,300	53½	54	53½	54	+ 1¼
110	110	105½	100	$5,000,000	$100	do pfd	$1.50Q	Dec. 2, 29	290	103¼	103¼	102¾	102⅞	+ ⅛
14¼	2½	24	5¼	(sh) 1,304,698	N.P.	Superior Oil Corp	.....	Dec. 20, 20	10,900	5½	5⅞	5⅜	5½	0
74¾	50	71⅞	50	$211,082,925	$25	The Texas Corp	75cQ	Jan. 1, 30	21,800	51⅜	52⅞	50⅞	51⅞	+ ⅜
26⅜	12⅛	23⅞	9	8,380,340	10	Texas Pacific Coal & Oil	2½%s	Dec. 31, 29	5,300	9⅛	8⅜	†9	9	— ¼
41½	19⅝	40	14	(sh) 2,179,275	N.P.	Tide Water Oil Co	20cQ	Dec. 31, 29	.....	.....	.....	.....	.....	.....
100⅛	86¾	97½	85½	$20,321,000	$100	do 5½% pfd	$1.25Q	Feb. 15, 30	200	86½	86½	86½	86½	— 1
25	14¾	23⅛	10	(sh) 4,877,976	N.P.	Tide Water Associated	30cQ	Feb. 15, 30	13,000	11⅜	11⅞	11	11¾	+ ⅜
91¾	81⅞	90⅞	74⅛	$72,989,200	$100	do pfd	$1.50Q	Jan. 2, 30	400	78⅝	80¾	78⅝	80¾	+ 2⅛
14⅜	6¾	15¼	5⅛	(sh) 3,842,029	N.P.	Transcontinental Oil	.....	.....	37,500	8	8¼	7¾	7⅞	— ⅛
58	42¾	54½	41⅛	$40,858,375	$25	Union Oil of California	‡50cQ	Feb. 10, 30	5,600	42⅛	43¾	42	42¾	+ ¼
128½	110	163¾	33	31,101,200	100	Union Tank Car Co	$1.25Q	Dec. 2, 29	1,000	34	34	†33	33	— ⅞
44⅞	26	42⅞	15	(sh) 488,359	N.P.	Warner Quinlan	50cQ	Jan. 2, 30	13,600	18⅜	18⅞	17	17	— 1¼
38	20½	38	25	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 30	2,600	27	28⅛	27	28	+ 1½
22⅛	17¼	29¾	11½	(sh) 428,967	N.P.	Wilcox Oil & Gas	....	May 10, 28	400	12	12	†11½	12	— ½

•New High †New Low xEx-Dividends ‡Also Extras s-Stock Total Sales 821,780

Tide Water Makes Changes In Sales Department

TULSA, March 1.—The removal of the general sales office for the Mid-Continent of the Tide Water Oil Sales Corp. from Chicago to Tulsa has caused several changes in personnel, according to J. W. Warner, sales manager. The removal of the offices brought between 20 and 25 families to Tulsa.

Mr. Warner, who has been named sales manager, was transferred to Tulsa from Baltimore. B. E. Blankenship, assistant sales manager, was formerly sales manager for the Tidal Refining Co., Tulsa. R. H. Mozier has been named southwestern department manager, with headquarters in Tulsa, and R. V. May is Chicago department manager.

The Iowa department will be under the management of L. F. Sutton, while the northwestern department will be managed by L. R. Leonard. F. J. Weiss will be Indiana department manager.

With the removal of the offices to Tulsa, all sales of both the branded and unbranded products manufactured by the Tidal company in the Mid-Continent, and the branded goods of the Tide Water will be handled by the Tulsa office.

Cousino Represents Securities Pet

CHICAGO, March. 3.—Ed. A. Cousino, vice-president of the Acme Petroleum Co., Chicago, announced his resignation effective March 1. He has been connected with Acme since July 1, 1919.

Mr. Cousino will act as the Chicago representative of the Securities Petroleum Co., Kansas City, handling a general marketing business. His headquarters, for the present, are at the Bryson Hotel, Chicago, telephone Oakland 3320.

Pittsburgh Curb Market

Transactions week ended Feb. 28, 1930

	Sales	High	Low	Last	Change
Arkansas Gas A..	325	12¼	11⅝	11⅞	+ ¼

Pittsburgh Stock Exchange

Transactions week ended Feb. 28, 1930

	Sales	High	Low	Last	Change
Ark. Nat. Gas....	575	12¾	12	12⅝	+ ⅛
do pfd.....	1,270	8	7⅞	7⅞	0
Devonian Oil....	140	9½	9	9½	— ¼
Dixie & Util pfd..	100	75	75	75	+2
Lone Star Gas....	7,798	39¼	36⅜	38¾	+1¾
do pfd.....	95	106	106	106	+ ½
Plymouth Oil....	375	26½	26	26	— ½
Salt Creek Cons..	200	2	2	2	— ⅛
Shamrock Oil & Gas	3,510	19⅜	17⅞	18¾	— ¾
do 6s.....	$7,000	96	96	96	+ ¼

New Oil Men Replace Those Who Sell

COLUMBUS, O., Feb. 27.—That the number of Independent marketers is not decreasing materially although the proposition of gallonage marketed by non-major companies may have fallen in the last year, is indicated in a report of W. A. Milne, executive secretary of the Ohio Petroleum Marketers Association, on the association's 1929 work.

Mr. Milne reported more than a score of Ohio marketers had sold their businesses in 1929 but the association's membership at its convention this year was only a few less than its membership a year before.

The association's annual revenue from the members who sold out, was approximately $10,000 a year but this sum was made up by the influx of new members and income from sustaining members. The association also made $600 a month on advertising in its own publication, Mr. Milne reported.

The association's income, which is said to be the largest of any state association, was $45,998.25 last year and expenses exceeded $40,000. The association has created a reserve fund investing in it part of the $8700 surplus it had at the end of its last fiscal year.

Mr. Milne in reviewing the association's work the last year said a third of its efforts had been devoted to promoting the code of marketing practices. He is chairman of the Ohio committee charged with getting signatures for the code and W. F. Burke, new president of the association, is chairman of the Ohio sub-committee on interpretation of the code. Mr. Milne's committee is continuing its efforts to get all marketers in the state to sign the code and the association's directors are backing up the work.

Mr. Milne said he had obtained a promise from the Ohio State Automobile Association that it would try to minimize the rebate-to-club-members evil which still exists in part of Ohio. He also obtained assurances that the speakers of the American Automobile Association have about discontinued their unwarranted attacks on the oil industry, he repeated.

Mr. Milne said that at present the population of the state's cut price area was 364,000 as against a state population of 6,710,000. Tax evasions had been greatly reduced, he reported, particularly in Cleveland where evasions had been the source of price cutting.

Spain imported 195,000 barrels of crude petroleum from the United States in 1928, which constituted three-fourths of its total crude imports.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

REFINERY SUPERINTENDENT with ten years experience refining gasoline, kerosene and fuel oils including cracking, desires connection. References. Address Box 492.

SALESMAN—EXECUTIVE—age 35 years, with major oil company experience in sales and land departments, desires state sales connection with large refinery or supply company or in land department with oil company. Want headquarters at Ada—the ideal city for factory sites. Address Box 331, Ada, Okla.

SALES EXECUTIVE AVAILABLE

A man with several years experience as a director of sales will be available about Jan. 15. Has personally sold as well as directed sales of gasoline, motor oils and grease to the jobbing trade. Has had unusual experience in compounding and managing grease and oil compounding plants. Still under forty-five years of age, healthy, am in a position to travel anywhere.

Address Box 468
c/o National Petroleum News

Situations Open

SALESMAN—Man capable of handling refinery sales of Western Stocks and Neutrals, Ohio and Michigan territory. Do not apply unless you are willing to accept compensation on basis of results. Address Box 499.

DRAFTSMEN

Thoroughly experienced on Oil Refinery Work, to Lay Out, Design and Check. Permanent Positions offered to qualified applicants. Submit full details in first letter. Location in Ohio.

Box No. 473

RESEARCH CHEMIST WANTED

experienced in research and development refining petroleum and its by-products. In reply state age, training, and experience.

Address White Star Refining Co.,
903 W. Grand Blvd., Detroit, Mich.

SALESMAN WANTED

Experienced seasoned industrial oil salesman for mill and factory trade in Pittsburgh District. A man of the right type, with some established business, plenty of initiative, etc., will find a permanent and lucrative connection.

Address Box 502

EXPERIENCED SALESMEN

are needed by an old refiner of highest grade nationally advertised Pennsylvania oils to pioneer several territories in Southeastern States now undeveloped.

Only men of good education and proved ability between ages of 25 and 45 need apply; must own car; oil experience preferred but not required; in writing state fully all qualifications if a reply is expected; your application will be quite confidential; salary, commission, expenses.

Address Box 501

Wanted to Buy

OIL COMPANY NOW EXPANDING

its business is interested in the outright purchase or lease of filling stations, bulk stations or complete units within 100 miles of Chicago, preferably in Illinois. Give location, gallonage per year, and price.

Address Box 503

Professional

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Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

Advertisers having box numbers should be addressed in care of National Petroleum News, 1213 West 3rd Street, Cleveland, Ohio, unless otherwise specified.

Standard Oil Stocks on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Mar. 1 Sales	First	High	Low	Last	Change
22⅜	14⅞	18¾	14¼	£4,126,460	£ 1	Anglo-American Oil	36c	June 5, 29	.....	.....	.....	.....	.....	.....
21¼	15	18	13	.....	....	do certificates	36c	June 5, 29	1,800	15	16¾	15	15½	— ⅝
20⅜	14⅜	17	11	.....	£ 1	do ctfs. non-voting	36c	June 5, 29	100	15½	15½	15½	15½	— ⅝
5	1⅛	2½	.75	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	400	¾	¾	¾	¾	0
9¾	3¼	4⅜	1	$10,000,000	$50	do pfd	.....	.....	2,200	1⅜	1⅜	1¼	1⅜	— 1/16
56	44½	46½	24¾	$1,000,000	25	Borne-Scrymser	$1 S.A.	Oct. 15, 29	.....	.....	.....	.....	.....	.....
76	58	74¼	55	10,000,000	50	Buckeye Pipe Line	‡$1Q	Dec. 14, 29	.....	.....	.....	.....	.....	.....
161	117¼	210	130	3,000,000	25	Chesebrough Mfg	‡$1Q	Dec. 30, 29	.....	.....	.....	.....	.....	.....
23	16	29	8⅛	36,123,350	10	Continental Oil	.....	Dec. 15, 27	100	12⅛	12⅛	12⅛	12⅛	+ 1/16
17⅜	9½	11¾	5⅝	.....	N.P.	Creole Petroleum	.....	.....	18,800	5¾	6	5⅝	5⅞	+ 1/16
82	67	95	40	1,500,000	50	Cumberland Pipe Line	$1Q	Dec. 16, 29	.....	.....	.....	.....	.....	.....
88	64⅜	70½	42	5,000,000	100	Eureka Pipe Line	$1Q	Feb. 1, 30	.....	.....	.....	.....	.....	.....
13	4¼	7	3	16,000,000	100	Galena Signal Oil	.....	June 30, 25	400	3½	3½	3⅜	3⅜	— 1/16
86	26	90	73½	4,000,000	100	do new pfd	.....	June 30, 26	30	76⅝	76⅝	76⅝	76⅝	— 1/16
89¾	35	88	71½	2,000,000	100	do old pfd	.....	June 30, 26	30	76⅝	76⅝	76⅝	76⅝	— 1/16
114¾	59¼	128	74¾	73,685,700	25	Humble Oil & Refining	50cQ	Jan. 1, 30	1,800	83⅞	85¾	82⅝	83¾	+ ⅛
290½	176½	340½	260	20,000,000	100	Illinois Pipe Line	$10S.A.	Dec. 16, 29	.....	.....	.....	.....	.....	.....
104	56¾	41	22	(sh) 26,421,768	N.P.	Imperial of Canada	12½cQ	Dec. 2, 29	6,800	23¼	24½	22⅜	24½	+ ⅜
91⅞	74⅜	41⅞	26	$1,000,000	$10	Indiana Pipe Line	‡50cQ	Feb. 15, 30	2,400	39⅜	39⅞	39½	39⅞	+ 1/16
55	35	37½	15	(sh) 14,247,088	N.P.	International Petroleum	12½c	June 25, 29	5,400	18½	19	18¼	19	+ ⅜
32⅜	19⅜	25⅞	10½	$6,363,350	12.50	National Transit Co	‡25cQ	Dec. 16, 29	1,800	20⅜	20½	20	20½	+ ⅜
75	38½	85	72	1,000,000	10	New York Transit	‡40cQ	Jan. 15, 30	.....	.....	.....	.....	.....	.....
....	....	....	....	.....	....	do new	.....	.....	.....	.....	.....	.....	.....	.....
69	56½	63	41	2,000,000	50	Northern Pipe Line	$2 S.A.	Jan. 2, 30	300	47¾	49¾	47¾	49¾	+ ¾
83⅛	58½	79⅞	64⅛	60,000,000	25	Ohio Oil Co	‡50cQ	Dec. 14, 29	300	67¾	68⅛	67¼	68	0
84	28	44½	18⅝	10,000,000	25	Penn Mex. Fuel	$1	Dec. 14, 29	300	20⅛	20⅜	20⅛	20⅛	— 1/16
220	167	50	29	4,000,000	25	Solar Refining	$1.25S.A.	Dec. 20, 29	.....	.....	.....	.....	.....	.....
19	12	23⅛	13	1,000,000	10	Southern Pipe Line	$10	Dec. 31, 29	100	14	14	14	14	0
71⅞	36¾	60¼	35⅜	30,000,000	25	South Penn Oil	‡50cQ	Dec. 30, 29	800	37⅞	38	37¾	38	0
102	70	70	45	1,750,000	50	South West Pa. Pipe Lines	$1	Dec. 31, 29	.....	.....	.....	.....	.....	.....
95⅞	70⅞	63	45	348,175,069	25	S. O. Indiana	‡62½cQ	Dec. 16, 29	19,500	50¼	50⅞	50	50½	0
27¾	15	33¾	18	8,000,000	25	S. O. Kansas	‡50cQ	Dec. 16, 29	600	28	28½	28	28½	+ 1⅛
49	44	46¾	29	25,654,516	10	S. O. Kentucky	‡40cQ	Dec. 31, 29	1,500	35½	36⅜	35⅛	35¾	+ ⅛
54⅜	39⅞	50¼	40	4,649,225	25	S. O. Nebraska	‡62½cQ	Dec. 20, 29	100	47½	47½	47½	47½	+ ⅜
134	71	129	60	14,000,000	25	S. O. Ohio	62½cQ	Jan. 2, 30	300	86	86	86	86	0
125	116	125½	106	7,000,000	100	do pfd	$1.75Q	Dec. 2, 29	20	120	120	120	120	0
23½	16	18	5⅛	861,466	25	Swan Finch	30c	Jan. 15, 29	.....	.....	.....	.....	.....	.....
111	72	133¾	75	126,154,000	25	Vacuum Oil	‡$1Q	Dec. 20, 29	7,600	92¾	95⅜	90	91⅜	+ ⅛

*New High †New Low ‡Also Extras

Independent Oils on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Par Value	Stocks	Transactions Week Ended Mar. 1 Sales	First	High	Low	Last	Change
1½	.53	.72	.125	$5	Amer. Cons. Oilfields	44,800	1/16	1/16	⅛	⅛	0
9½	3⅛	8⅜	1⅜	N.P.	Amer. Maracaibo	4,000	2¼	2¼	1⅞	2	0
4½	2¼	4¾	1	$10	Argo Oil	100	1¼	1¼	1¼	1¼	0
3¾	3¾	26	3¾	N.P.	Arkansas Nat. Gas	5,800	12¼	12⅞	12	12⅞	+ 5/16
....	....	24¾	6½	N.P.	do A	21,800	11⅞	12⅝	11½	12⅝	+ 5/16
....	....	9	4	10	do pfd	100	7⅞	7⅞	7⅞	7⅞	0
55	32¾	70	50	N.P.	British American Oil	.....	.....	.....	.....	.....	.....
23⅜	3¾	4⅞	⅞	25c	Carib Syndicate	800	1¼	1½	1⅛	1½	+ ¼
....	....	68⅜	20	N.P.	Cities Service new	113,900	32¾	33⅞	32⅜	33¾	+ 1
103½	94½	99¾	84	100	do pfd	800	88½	89⅛	88⅜	88⅞	0
9⅜	8⅞	9¾	8	10	do pref. B	100	8¼	8¼	8¼	8¼	+ 1/16
97	88½	96	81	100	do pref. BB	100	82	82	82	82	+ ½
2¼	1	1⅜	⅛	1	Colombia Syndicate	11,600	⅜	⅜	¼	⅜	0
17½	9¾	15	3⅞	N.P.	Colon Oil	400	6	6½	6	6⅛	— ⅛
8⅞	6¾	11⅜	2½	10	Consolidated Royal	100	4⅛	4⅛	4⅛	4⅛	0
....	....	135	42	N.P.	Cosden Oil Co	1,400	56½	56½	50	55	— 5¼
....	....	82	55	....	do pfd	100	61	61	61	61	— 3½
3¼	.76	2⅛	¼	N.P.	Crown Central	1,800	⅝	⅞	⅝	⅞	+ ¼
15	6¾	11¾	4	N.P.	Crystal Oil	.....	.....	.....	.....	.....	.....
50	48	51⅛	51⅛	$100	do pfd	.....	.....	.....	.....	.....	.....
33⅛	8¾	26	6½	N.P.	Darby Petroleum	400	8	8	8	8	— ⅛
2½	1	11	2	N.P.	Derby Oil & Refining	3,800	4⅞	5	4¾	4¾	— ⅛
21¼	7½	44	5	N.P.	do pfd	.....	.....	.....	.....	.....	.....
165	101¾	209	115	$25	Gulf Oil Corp	4,800	132	134⅞	132	131¾	— 2¼
7½	5⅜	7½	1⅜	5	Homaokla Oil	.....	.....	.....	.....	.....	.....
....	....	49¾	5	$1	Indian Territory	48,900	38¼	41¾	38¼	41¾	+ 3¼
3¾	1	2⅞	⅜	10	Intercontinental Pet	5,800	⅞	1	⅞	⅞	0
3	⅛	3⅜	1¼	N.P.	Kirby Petroleum	400	2	2	2	2	0
9¾	5⅛	6⅛	1	N.P.	Leonard Oil & Dev	900	1⅜	1⅜	1¼	1⅜	+ ¼
43⅜	20	38⅞	18	N.P.	Lion Oil & Refg	800	20	20	20	20	— ⅜
....	....	67⅞	28	N.P.	Lone Star Gas	2,800	37	39	36	39	+ 2
1⅞	.50	1¼	¼	1	Magdalena Syndicate	1,600	1/16	1/16	¼	1/16	0
48½	32	38½	15	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
8	2¾	6¾	2	N.P.	Mexico-Ohio Oil	400	2½	2½	2½	2½	+ ½
....	....	42	8	N.P.	Missouri-Kan. P. L	8,900	22¾	23½	22⅝	23½	+ ⅝
1¾	.76	1⅜	¼	1	Mountain & Gulf	500	½	½	½	½	0
28⅞	19½	22⅞	7	10	Mountain Producers	5,800	8⅞	9⅛	8⅛	8¾	+ ¼
....	....	43¾	24	N.P.	Nat. Fuel Gas (new)	1,400	32	32	31⅛	31⅛	— 1
5½	4¼	5	2⅛	5	New Bradford	100	2½	2½	2½	2½	— ⅜
5½	3	3⅞	2¾	10	New England Fuel	.....	.....	.....	.....	.....	.....
11⅞	7⅛	9⅜	2¼	1	New Mex. & Ariz	4,500	5⅝	7¾	5⅜	7	+ 2¾
15½	11⅜	24½	11¼	25	New York Petrol	.....	.....	.....	.....	.....	.....
13⅛	8⅜	18½	6¼	N.P.	North Cent. Texas	300	8¼	8¼	8⅜	8⅛	+ 1¼
....	....	19¼	8½	N.P.	Oil Stock, Ltd. A	200	8¼	8¾	8¼	8¼	0
....	....	18¼	8½	N.P.	do B	.....	.....	.....	.....	.....	.....
26¼	20	26⅝	12⅜	N.P.	Pacific Western Oil	200	15¼	15¼	13½	13¾	— 1¼
6	2½	3½	½	N.P.	Pandem Oil	8,900	1⅝	2	1½	2	+ ¼
15⅜	8½	10½	2⅜	N.P.	Pantepec Oil	1,200	2⅝	3⅜	2⅝	2¾	0
20	10⅜	25½	22½	$25	Paragon Refg. B. ctfs.	.....	.....	.....	.....	.....	.....
....	....	34½	17	N.P.	Petroleum Corp	10,800	20½	21	20	20⅜	— ¼
31¾	26½	37	22	N.P.	Plymouth Oil	200	26⅛	26⅛	26	26	— ¾
18	8	16	9	25	Red Bank Oil	400	9	9	†9	9	0
13	4⅛	8⅛	1⅜	N.P.	Reiter-Foster	200	2⅜	2½	2¼	2⅜	+ 1/16
31½	23¼	25½	19	$25	Richfield pfd	.....	.....	.....	.....	.....	.....
....	....	29	13	....	Root Refining pfd	100	15	15	15	15	0
12	4½	11	3	N.P.	Ryan Consolidated	100	3¾	3¾	3¾	3¾	— ⅜
7¾	5½	5⅞	1⅜	$10	Salt Creek Cons	400	2	2	2	2	0
35	23¼	25⅞	9	10	Salt Creek Prod	1,300	12	12¼	11⅜	11⅜	+ 1/16
3½	1	2½	½	5	Savoy Oil	.....	.....	.....	.....	.....	.....
40	27	33⅛	10	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
....	....	24	9⅛	N.P.	Southland Royalty	500	9½	9½	†9⅛	9⅛	— ⅛
....	....	12	4	N.P.	Sunray Oil	1,400	6	6¼	5⅝	5⅝	0
....	....	23	7⅛	N.P.	Texon Oil & Land new	700	8⅝	8¾	8⅝	8¾	+ 1/16
22⅞	13	16⅞	11⅝	$10	Tidal Osage	.....	.....	.....	.....	.....	.....
21¼	13⅛	16½	10⅛	10	do not-voting	.....	.....	.....	.....	.....	.....
93¾	75	155	80	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
74⅛	18	81⅛	66	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
9⅛	4⅛	6½	1⅜	3	Venezuelan Petrol	1,000	3¼	3¼	3	3⅛	0
....	....	66	2¼	N.P.	White Star Oil	.....	.....	.....	.....	.....	.....
8¼	4⅛	9⅛	2	1	Woodley Petroleum	200	2¼	2¼	2¼	2¼	— ¼
⅜	⅛	5⅜	¼	25	Y Oil & Gas	100	¾	¾	¾	¾	— 1/16

*New High †New Low

New York Curb Bonds

Week Ending Feb. 28

	High	Low	Last	Change
Beacon Oil 6s '36	103	103	103	0
Cities Serv. 5s '66	83¼	83	83	0
Cities Serv. G. 5½s '42	84¼	84¼	84¼	0
Cities Serv. G. P. 6s '43	91	91	91	0
Cont. Oil 5¼s '37	95	94	95	+ ½
Empire O & R 5½s '42	84¼	84¼	84¼	0
Gulf Oil 5s '37	101	100¼	100¼	— ⅜
Gulf Oil 5s '47	101	101	101	— 1/16
Indep. Oil 6s '39	102	100⅛	100⅛	— ⅞
Sun Oil 5½s '39	102	101¼	102	+1

New York Bonds

Week Ending Feb. 28

	High	Low	Last	Change
Assoc. Oil gold 6s	102¾	102½	102¾	+ ¼
Atlantic Refg. deb. 5s	100¾	100¼	100¾	+ ½
Cal. Pet. 5s	96¼	95¾	96¼	+1½
Cal. Pet. 5½s	99¾	99¾	99¾	+ ¼
General Pet. 5s	100⅜	100⅜	100⅜	+ ⅜
Humble Oil & Refg. 5s	100⅜	99⅞	100⅛	+ ⅜
Humble Oil & Refg. 5½s	102	101⅞	101⅞	0
Pan Amer. P & T 7s	103½	103½	103½	+2½
Pan Amer. P & T 6s	102½	102½	102½	0
Pan Amer. P & T 6s	94	93	94	+ ½
Phillips Pet. 5½s	91⅜	90	91¾	+ ¾
Pure Oil 5½s	100⅛	99½	99½	— ½
Richfield Oil of Calif. 6s	95½	95	95½	+ ½
Shell Union Oil 5s	94⅜	94	94¼	0
Shell Pipe Line 5s	93½	93	93	0
Sinclair Con. Oil 7s	101¾	101⅛	101½	+ ⅛
Sinclair Con. Oil 6½s	101	100⅝	101	+ ⅝
Sinclair Con. Oil 6s D	100¼	100¼	100¼	0
Sinclair Con. Crude 5½s	98½	98	98⅛	0
Sinclair Pipeline	95⅜	95	95¼	+ ⅛
Skelly Oil 5½s	91	91	91	—1
S. O. N. J. 5s	102½	102	102½	0
S. O. N. Y. 4½s	95¾	95¼	95½	+ ⅜
Transcontinental Oil 6½s war	99	97½	97¾	—1⅛
Transcontinental Oil 6½s ex-war	92	92	92	+1
Union Oil of Calif. 6s A	109½	107¾	109½	+1⅞
Union Oil of Calif. 1st 5s A	101¼	101¼	101¼	+ ⅛
Union Oil of Calif. 5s C	99¾	99½	99⅝	— ⅜
Warner-Quinlan 6s	85	84½	84½	— ½
White Eagle Oil 5½s	103	102⅝	102	— ¼

Cleveland Stock Market

Feb. 28, 1930

	Par Value	Bid	Asked
Canfield Oil Co	$100	110	135
Fred G. Clark	10	9	10½
National Refining Co	25	33	34
do pfd	100	..	135
Paragon Refining Co	25	8½	9½
do pfd	N.P.	..	35
do ctfs	..	8	..